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ABSTRACT

This document presents findings of an evaluation of two projects of the Aga Khan Foundation's School Improvement Programme located in Kisumu, Kenya, and Bombay, India. The program is based on the assumption that effective change consists of a focus on the individual school, clinical methods of teacher development, and improved school management. Data were collected through classroom observations; semistructured interviews with key project administrators, teachers, and parents; informal interviews with project managers, staff, and teachers; surveys of teachers of parents; and pupil tests. Overall, the program was found to be highly successful. However, the projects need to ensure that professional-development strategies remain in place, improve the cost effectiveness of clinical staff development, and provide more focused training of headteachers. The emphases on individual schools and child-centered learning were effective. In addition, the new teaching strategies did not lead to lower standards of student attainment and did facilitate students' development of noncognitive and social skills. Recommendations are offered for project policy formation and planning. This report contains: a review of the literature; two case studies--of the Kisumu and Bombay projects respectively; a summary of the evaluation of the principles underpinning the Aga Khan Foundation model; and appendices containing the teacher questionnaire, terms of reference, and evaluation instruments. Thirteen tables and two figures are included. Contains 36 references. (LMI)

ED 363 930

School Improvement

in the Developing World

An Evaluation of the Aga Khan Foundation Programme

Harry Black, R. Govinda, Florence Kiragu and Marion Devine

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Harry Black, R Govinda, Florence Kiragu
and Marion Devine

The Scottish Council for Research in Education
15 St John Street, Edinburgh EH8 8JR

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Preface

The Aga Khan Foundation is a funding agency which seeks to promote sustainable and equitable social development in Asia and Africa. It pursues this goal by looking for innovative approaches to generic problems of development and testing them through grants to organisations that share its desire to learn what works.

Most projects are evaluated every three years or so. AKF is often asked why it spends donations from its Founder and other individuals and agencies on often quite expensive experts to tell us what we often already know from reports by our own staff or by the grantees themselves. Wouldn't it be better to use this money to increase the size of the grants?

AKF's answer is that a small organisation cannot hope to meet all the needs of the world's poor, not even the poor of just one country. It can best make an impact on development by the quality and imaginativeness of its interventions and by disseminating the lessons learned. Before inviting others to replicate and extend the experiments which AKF has nurtured, the Foundation must, to the best of its ability, certify their effectiveness. To do this, it must engage evaluators who are recognised as experts in their field and ensure that they have free rein to comment on a project's conceptualisation and evolution, and above all on the practical value of its outcomes.

The Foundation's portfolio of education projects is divided into two parts: Improving the Quality of Schools, and Young Children and the Family.

The School Improvement projects have been designed to test two assumptions: that teaching skills are best acquired in real classrooms, by apprentices imitating experts at work; and that classroom teachers are capable of producing good-quality curriculum materials to offset the shortage of official textbooks. The success of the first round of projects has encouraged AKF to probe the 'School Improvement' formula in more detail and estimate the importance of such factors as management skills, resource centres which support a circle of schools, etc. Since two of the School Improvement projects, at Bombay in India and Kisumu in Kenya, have been pursuing similar lines of enquiry, and since both were due for an external review in 1992, AKF decided to make it a comparative study and entrusted the task to the Scottish Council for Research in Education. Harry Black and his two co-researchers, Dr Govinda in India and Ms Kiragu in Kenya, have produced a report which, we believe, justifies AKF's approach to School Improvement, but they have also described a demanding agenda of 'unfinished business' which the next phases of these two projects are keen to tackle.

AKF is pleased to record its thanks to the Overseas Development Administration of the United Kingdom and the Canadian International Development Agency which, in addition to funding part of the costs of the two projects, have contributed generously to this evaluation.

Jeremy Greenland
Director of Education Programmes
Aga Khan Foundation

KISUMU School Improvement Programme

Summary

1. The Aga Khan Foundation's 'School Improvement Programme' is based on the assumption that the most effective lever to change comprises attention to:

   - the individual school;
   - 'clinical' methods of teacher development which involve trainers working alongside teachers in their own classrooms and;
   - improved school management.

   In 1992, this programme comprised nine projects located in Tanzania, Kenya, Pakistan and India. Two of these projects, one in Kisumu in Western Kenya and the other in Bombay, India were studied in depth for the purposes of this evaluation. An additional theme running through each of these is a focus on child-centred learning.

2. The Aga Khan Foundation's educational budget for 1992-93 was £ 17m. Many of the Programme's projects were jointly funded. This is the case in Bombay with joint funding from AKF (60%) and ODA (40%) while for the Kisumu project the joint sponsors were AKF (7%), CIDA (58%), ODA (21%) and Comic Relief (14%). The overall budget for the Bombay project was £125,876 (1989 prices) and for the Kisumu project £297,746 (1990 prices).

The Evaluation

3. The evaluation was conducted independently by the Scottish Council for Research in Education in Edinburgh. Experienced research associates were appointed to conduct the fieldwork in India and Kenya.

Overall Conclusion

4. The Foundation's programme was considered by the evaluators to be highly successful although there is room for improvement in some particular aspects of the individual case studies.

Main Findings

5. The **individual school** proved to be an appropriate focus for growth, especially when, as in the Bombay project, deliberate efforts are made to involve the whole staff.

6. There were some suggestions in the data that systematic attention to the individual school does not lead necessarily to realisation of maximum benefit from the professional networks which build on the potential of links between teachers and schools.

7. The Kisumu project was a particularly good example of **clinical training** being delivered in schools with trainers working alongside teachers to help them deal with the real practical challenges of the classroom. We would strongly recommend that this aspect of the project be taken forward.

8. The experience of both projects nevertheless pointed up a number of practical challenges which have to be faced up to in the 'clinical' context. For example, in both projects it became clear that there is a need to ensure that strategies are in place to ensure the continuing professional development of 'trained' teachers. In Bombay in particular the need was apparent, even within a couple of years of the project being established, for a more sophisticated induction programme for new teachers entering 'trained' schools.

9. A lack of sophistication amongst teachers in explaining why they were changing their practice, led us to wonder whether the clinical approach should comprise *negotiating* with teachers on their developmental needs or *training* them to implement a standard model.

10. Both projects still have some way to go in bringing about optimally cost-effective means of clinical staff development.

11. One potential weakness in the development of **management practices** in both projects was inadequate attention to ensuring the central role of headteachers who have a pivotal role in deciding the fate of any changes once funding is withdrawn.

12. More focused training of headteachers relating to their role in a school where innovation is taking place could be effective in ensuring the continuing support which is necessary once teachers have been through the training process.

13. **Child-centred learning** was central to the philosophy of both projects although more explicitly so in Bombay, the director of the Kisumu project limiting his claims to a move towards more 'active learning'.

14. There was no evidence that this change in teaching strategy had led to lower standards of attainment in basic skills in Maths and language, and indeed there was some evidence of gains in language skills.

15. The new strategies brought about substantially more opportunity for pupils to develop non-cognitive and personal and social skills. Pupils were more self-confident and better able to take responsibility for their own learning.

16. Classroom environments were substantially more stimulating in project schools, especially in the way that teachers used wall space and laid out learning areas.

17. Despite the progress made in the difficult circumstances encountered by teachers in these schools, there is still scope for a greater degree of individualisation and use of group work than we observed in many classrooms. The key may be in project staff being aware of the extent to which teachers and pupils find it difficult to work in this way and, therefore, the need for them to be trained to do so.

Lessons Learned

18. Those conducting programmes such as these should be clear in distinguishing between the developmental aspects of projects and their potential to build generalisable models of practice.

19. If 'generalisability' is important, a profile of potential beneficiaries should be drawn up from the outset and mechanisms should be built into the project design to optimise its value to these groups.

20. Steps should be taken to ensure that the work of individual projects is accessible to others who might benefit from the experience. A high priority should be attached by project directors, perhaps working in collaboration with conducting agency's project officers, to writing descriptive papers and booklets about their work.

21. Project planning agendae should deliberately include a strategy for the dissemination of good practice as the project progresses.

22. Those in receipt of funding should be clear from the outset that the resources are intended to be for 'pump priming', that the solutions developed have to be sustainable within existing budgets, and that the most stringent test of success will be whether the changes brought about by the project will be sustained once funding has been withdrawn.

23. Conducting agencies should have clear policies in relation to their contractual intentions for project staff. The normal cycle of project implementation could be characterised as an initial period of enthusiasm, a substantial period of sustained implementation and a final phase of rundown. Experience would suggest that the last phase, which can be as much as the final third of project time, is often poor value for money, and at least part of the problem arises from staff uncertainty about their future and indeed changes in key personnel as individuals secure continued employment by moving.

24. Conducting agencies should be pro-active in nurturing the skills of key players such as project directors, rather than assuming that they are self-sufficient and self-sustaining.

25. Full advantage should be taken of conducting agencies networks to share experience amongst their own projects and with similar work funded by other NGOs. There may be potential to seek sponsorship for regular international conferences on specific themes such as 'child-centred learning', 'institutional growth' or 'school-based staff development'.

26. Attention should be paid to requiring project proposals to be more precise in describing what will constitute the intended effects of the programme. The danger of overemphasis on easily measurable performance indicators must be avoided, but without clarity those responsible for implementation will find it difficult to judge whether they are being successful.

27. Conducting agencies and funding agencies should have a policy on monitoring and evaluation. More attention might be given to systematic self-evaluation based on pro-formae designed to point up the most central characteristics of projects. A reasonable proportion of a project's budget should be devoted to external evaluation. There are benefits to be gained from planning external evaluation into project programmes from the outset.

Acknowledgements

Conducting this evaluation involved the substantial cooperation of a large number of people in four continents. At the beginning the staff of the AKF office in London were particularly helpful in negotiating the details of the contract and agreeing the terms of reference in discussion with the principal evaluator. At this stage the evaluation staff of the Overseas Development Administration very usefully produced factual accounts of the history of the two projects from their inception to the time of the evaluation. This, combined with the work which colleagues at SCRE put into producing a review of the literature on School Improvement in the Developing World, meant that the project began with firm foundations.

Our initial familiarisation visits to Bombay and Kisumu were ably supported by the staff of the Aga Khan Educational Service in both countries and by the project directors and staff themselves. Even in these two weeks we made many demands on staff in schools and on all occasions these were met with an encouraging interest.

The research staff at SCRE, and in particular John Hall and Heather Malcolm, gave us useful advice on the construction of instruments based on their own experience in conducting evaluations. Member of the project committee also met in Edinburgh at that time and gave us considerable help both at that stage and as the project progressed.

Undoubtedly, however, the greatest demands were placed on the schools and teachers who came to be the focus of our detailed case studies during the summer. Again, the willingness of teachers to let us into their classrooms and to talk to their pupils, as well as parents willingness to share their interests and concerns with us, are testimony to the importance which they attached to the projects we were evaluating.

Importantly we must not omit from acknowledgements the funders of the project. These comprised the Aga Khan Foundation itself, the Overseas Development Administration and the Canadian International Development Agency. We were impressed by the willingness of the Foundation to lay itself open to evaluation in the way that they did. We were even more impressed by the enormous professionalism of the officers of the Foundation who left the design of the study and the writing of the report completely to the discretion of the evaluators themselves.

Our final thanks go to Kay Young who had the onerous task of acting as secretary to the project. Not only has she prepared the report but she worked almost constantly during the preparation of the research instruments to produce in a fortnight the many drafts which eventually led to the complete set of instruments for two countries being produced in what must be a record-breaking two weeks.

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1 Background

1.1 School Improvement in the Developing World

The 1960s and 1970s saw a substantial quantitative increase in the provision of education in the Developing World. This was characterised by investment in the fabric of education and an increase in the proportion of young people receiving basic provision. In the 1980s, however, a number of factors combined to move the focus away from quantity and towards questions about what are the determinants of quality and cost-effectiveness.

The growing interest in quality has led to a substantial literature on 'school effectiveness' in the Developing World, some of which is described in Chapter 2. Four principal determinants of quality can be identified. First, **material inputs** include class size, the nature of the curriculum, the language of instruction, the availability of basic learning materials, 'high technology' inputs from science laboratories and information technology (neither of which may be particularly cost-effective), school buildings and furniture and school feeding programmes. Second, issues concerning **teacher quality** can be identified. These include the nature and extent of pre-service training, the effectiveness of in-service training, teachers' basic skills such as their linguistic competence, and classroom management skills such as the time devoted to 'task' and their commitment to homework.

A third determinant of quality concerns **school management and structure**. Effective schools are considered to be 'ordered' in the sense that teachers and pupils attend regularly, records are kept and buildings are clean and maintained. Pupils progress systematically through the curriculum with regular monitoring of progress. There are high expectations of pupils, and headteachers take an active interest in staff and pupils. Finally, a fourth set of determinants of quality relates to the process of bringing about change. A number of studies have given consideration to the effectiveness of **implementation strategies**, one major World Bank review suggesting that the five basic considerations relate to the quality of the implementation phase, the need for effective administration, the flexibility of the project design, the availability of systematic procedures to learn from the experience and the need to plan from the outset for eventual institutionalisation.

1.2 The Aga Khan Foundation Programme in Education

The Aga Khan Foundation (AKF) was established in 1967 with a broad charter of concern for social development, primarily in low-income countries of Asia and Africa. In its early years it was involved mainly with matters relating to hospitals, health centres and schools within the Aga Khan framework, but in 1983 it established an International Strategy which outlined the thematic concerns on which it would focus in the coming years. At the same time the budget available for the Foundation's projects grew substantially. In 1982 it stood at less than £2m p.a. while by 1992 it exceeded £17m.

It was thus within the context of school improvement in the 1980s described above that the Foundation has conducted most of its work. The 1983 Strategy for schools concentrated on what were seen as the qualitative rather than the quantitative challenges. It came to sponsor a series of projects which can be clustered around two themes. The first is associated with the notion that the professional development of teachers is best achieved in real classrooms. The earliest project to concentrate on this theme was the Field-Based Teacher Development project in Northern Pakistan and an interesting derivative of this is examined in the School Improvement Project in Kisumu, Kenya which is described in detail in this report.

The second theme focused on the active involvement of teachers working in collaboration with outside consultants to develop curriculum materials for their own classrooms. The first project to prioritise this approach was that in the Aga Khan Mzizima School in Tanzania, and in this report the theme is visited in our study of a project in two Aga Khan Education Service schools in Bombay. Other themes which run through the programme include a commitment to development in individual schools, a focus on child-centred or activity-based methods of learning and the development of good management practices in the running of schools.

Overall however, the thrust of the Foundation's programme has increasingly focused on the fundamental issue of how best to bring about improvement in schools in the developing world. The present position is summarised in the Foundation's International Strategy for 1991-99 which identifies seven questions for the education programme in the '90s:

- What is the minimum list of powerful generic teaching skills which every teacher must have in his kitbag? How are such skills best acquired or transmitted?
- What is the optimum mix between school-based and off-site teacher training and curriculum development?
- What are the implications for costs and logistics of going to scale in the training of teachers on-the-job?
- What is meant by management skills in education, and how crucial are they?
- What is the best compromise between enabling teachers to write their own materials, and getting experts to produce materials which make the teacher redundant?

- How can AKF's present 'school improvement' projects best be supported on an on-going basis, and their leaders be given more rigorous training that would merit accreditation by a university?
- By what mechanisms can the continually rising costs of education be recovered from the local community?

1.3 Origins of the study

At the beginning of 1992, AKF was sponsoring nine 'school improvement' projects located in Tanzania, Kenya, Pakistan and India. Each project was at a different stage of development but all were in a 'mature' phase and in several cases the question of whether their funding should be continued was imminent. Rather than make these decisions solely on existing evidence from individual project monitoring and evaluation, the AKF Board decided to commission a cross-national study which would test the hypothesis that 'attention to (1) the individual school, (2) a 'clinical' method of teacher training, and (3) management practices combine to produce the basic formula for school improvement'.

It is a feature of many of AKF's projects that they are jointly funded by other agencies which have an interest in school improvement in the developing world. These include the Canadian International Development Agency (CIDA) and the Overseas Development Administration (ODA) of the British Government. The Foundation shared its interest in such an evaluation with ODA and after some negotiation, joint terms of reference were agreed which would reflect the interests of both sponsors. CIDA, which co-funded the Kisumu School Improvement Project with ODA and AKF, also agreed to contribute to the evaluation by meeting the costs of the local research associate in Kenya.

As will be explained below, it was decided that the evaluation would focus on case studies of two projects. The complete terms of reference are set out in Appendix 1, but they can be summarised as comprising the following evaluation questions:

1. In what ways and why have the objectives changed during the life of the projects? Were the objectives clearly specified and appropriate?
2. What constraints to educational improvement did the projects face, and how did they address them?
3. How were schools chosen for the projects? How might this choice be justified?
4. What impact has the school-based staff development strategy used by the projects had on teachers and teaching methods?
5. In what ways have the projects impacted on classroom environments?
6. What impact have the projects had on pupil attainment?
7. To what extent have the projects impacted on the most disadvantaged sections of the community?
8. Did the projects take full account of the needs of women in their communities?

9. What were the unit costs of the projects per pupil and how have these varied over time, particularly as new schools have been brought into the projects?
10. How do the project costs compare with the overall costs of education in the project schools and the national cost statistics of government funded schools of the age group?
11. To what extent do the findings suggest that the project costs are or are not justified?
12. To what extent are the projects sustainable in institutional terms and to what extent do they offer a model which might be replicable elsewhere?
13. In what ways might the cost-effectiveness and efficiency of the present projects be improved?
14. Overall, what lessons can be learned from a comparison of these projects and, if appropriate, other projects within the Foundation's programme?

The Scottish Council for Research in Education was invited to undertake the study. The Council appointed an international coordinator as director and research associates were appointed in both Kenya and India to undertake the fieldwork. The design of the study was subsequently negotiated with the sponsors and is outlined below.

1.4 Methodology

Much of the evidence on factors which improve the quality of education is drawn from survey reports. Large scale survey evidence such as that available from the IEA, tends to concentrate on factors which are easily measured such as time, money, visible resources etc. These are often assumed to act as proxies for more qualitative characteristics such as teacher or headteacher quality (salary, years of experience, post secondary training etc). Relatively little of the published research is based on observation of pupils and teachers in the classroom. From our own work (Black et al, 1991) we know that there can be considerable discrepancies between self reporting of teaching and learning strategies and classroom observation. As Hawes (Bude, 1989) points out, we have very little evidence on what goes on in the classroom - how teachers teach, how children learn and what communities, teachers and children think of education.

Evaluation reports which are based purely on the professional insights of 'experts' are often insufficiently rigorous to provide hard evidence about particular improvements or innovations. The limitations of such methods makes it impossible to generalise the findings to other classes or other schools. Where the schools being evaluated are 'extreme outliers' which are in no way representative of other schools, the problems of learning from the findings are compounded. What is missing is the systematic observation of pupils and teachers in their classrooms and the structured interview and questionnaire data which characterises professional educational evaluation in Northern Europe, North America and some other parts of the industrialised world.

Given the emphasis on quality which underpins most of the evaluation questions set for this study, it was decided to focus on an in-depth consideration of two projects, each of which was coming towards the end of its initial agreed funding. These projects comprised the School Improvement Projects in, (a) the AKES and Municipal Schools of Kisumu in Western Kenya and; (b) the Diamond Jubilee Boys' and Girls' Aga Khan Educational Service schools in central Bombay. After one week site visits to the projects by the research coordinator and the respective research associates, the team met in Edinburgh to design instruments for the data gathering phase. These instruments were then used in an intensive data gathering period of approximately six weeks during which time both associates worked together in Bombay for one week in part to ensure the inter-rater reliability of the observation instruments. The research associates then drafted individual country reports which were shared and edited during a final whole team meeting in Kenya after which this overall report was prepared. A calendar showing the time scale of the project is shown in Figure 1.

Figure 1 A calendar of the project

1992	
April	Literature review
	Familiarisation study in Bombay
May	Familiarisation study in Kisumu
June	Instrument construction workshop in Edinburgh
July	Data collection in Bombay and Kisumu
August	
September	First draft of reports Editorial meeting, Mombassa
October	Draft of overall report
November	Report to sponsors

The most important aspect of the methodology was the preparation and use of the evaluation instruments. These comprised, as appropriate, systematic classroom observation schedules, semi-structured interview schedules, questionnaires and pupil tests. Examples of each of these are shown in Appendix 2. The choice of instrument depended on the nature of the evaluation question and the size of the population to which it related.

Semi-structured interviews were conducted with key individuals involved in the planning, implementation and management of the projects and with small numbers of other groups such as teachers and parents. The purpose of these interviews was to clarify matters of substance about the projects, explore participants views on a range of matters and, especially in interviews which were conducted during the initial site visits, to set the agenda for the questionnaires which would be used to gather data from teachers and parents. **Informal** interviews of considerable length were conducted with AKES and project managers, project teams and AKF staff responsible for the programme. Although these data are 'hidden' behind the more systematic work we subsequently conducted in the project schools, they were very important in helping us to decide which questions to ask and how to structure the report. Informal interviews were also conducted with teachers following their lessons and with pupils at work in their classrooms. As the pupils were seldom older than 9, and often possessed limited reading skills, no questionnaire data was gathered from them. **Group** interviews were also conducted with parents at schools in each project.

Questionnaires were used when the number of interested parties was greater than our resources would allow us to deal with by interview. These comprised teachers and parents in both projects and headteachers of schools throughout the Kisumu Municipality. **Classroom observations** were conducted in a limited sample of classrooms in each project. The schedules focused on both pupil and teacher activities and used an 'alternate minutes' approach which documented a 50% sample of time in each classroom for a whole day's teaching. **Pupil tests** were used to measure attainment in language and mathematics and the classroom observations were extended to document the opportunities which pupils had to develop non-cognitive skills and the extent to which they seemed to be confident in using them. Systematic **profiles** were also built to document the physical nature of classrooms and the availability of basic materials.

In Bombay the project was confined to two schools and they were clearly the main focus of the study. However, a 'comparable' school was also identified outwith the project and 'control' data on pupil attainment and classroom practices were gathered there. In Kisumu, the eventual target of the project is all schools in the Municipality and indeed, all have already been influenced to some extent. However, we were able to identify four categories of involvement in the project including one which was as yet only peripheral. With the last acting as the nearest proxy for a 'control', one school was chosen at random from each of the four categories and the whole bank of data was gathered from each. While we therefore lacked true baseline data which would only have been available prior to implementation of the project, we do have some means of comparing the impacts on project schools with those which were at most marginally involved, and in the Bombay case, not involved at all.

We are satisfied that our account of progress in Bombay is well supported by the 'census' of activity in both schools which we undertook.

In Kisumu our limited resources were insufficient to conduct studies in all the schools that were involved. Inevitably, however, this means that our sampling of four schools may have resulted in our missing particularly good or poor examples of practice in the other schools. We are satisfied that the sampling strategy we chose was the most appropriate for the circumstances, but we are equally willing to admit to the limitations it carried with it.

In the next chapter we will step back from the detail of our study to offer a brief review of the literature as we know it. Subsequent chapters will use the data we gathered using the instruments described above to address the evaluation questions arising from the terms of reference. In Chapters 2 and 4 respectively, the main findings from the individual case studies are reported. In Chapter 5 the main evaluation questions are again addressed, but this time in order to bring together the conclusions which seem to be appropriate given the findings of the case studies, the relationships between them, existing knowledge on school improvement such as that set out in Chapter 2, evidence from previous AKF evaluations and the previous experience of the team in evaluating innovative educational programmes.

2 A review of the literature

There is little point in conducting studies which are not at least built upon an awareness of previous work of a similar nature. Amongst the first tasks for our study was therefore to conduct a review of the existing literature on school effectiveness in the developing world.

2.1 The decades of quantitative progress

Developing countries made impressive advances in education during the 1960s and 1970s. Quantitative indicators, including both the number of educated people and the rate of enrolment, show that considerable progress was made over these two decades. This expansion took place against a climate of considerable political change as many countries achieved political independence and accepted the responsibility for determining their own educational policies. Governments gave high priority to education in allocating their resources, reflecting both the political will to satisfy an essential human right and the need to promote the economic and social growth of their societies. Parents and children shared the view that education would improve their living conditions and created a demand for access to education.

Between 1960 and 1980, primary school enrolment increased by over 100 percent and a number of countries have almost achieved universal primary education. Furthermore, enrolment increased by 280% at the secondary level, partly because of the much lower base line of growth at the beginning of the period of expansion and partly because many countries gave the highest priority to developing a skilled population through rapid expansion of secondary (and higher) education.

Such rapid expansion in enrolment led to increased recruitment and training of teaching staff at all levels. The enrolment of pupils at primary level was more than matched by the increase in teachers, although at the secondary level the pupil - teacher ratio increased. A huge investment in school buildings was also needed and a number of countries developed significant self-help programmes of community participation in school building.

This growth required a considerable increase in expenditure. Figures from UNESCO show that public expenditure, expressed as a percentage of GNP, increased steadily up until the late 1970s. (Hallak, 1990). This escalation of costs assumed crisis proportions in many countries as the major recession which began in the industrialised countries spread to developing countries. The resulting balance of payment and budget deficits severely affected the capacity of governments to finance education. There was increasingly a realisation that further progress in education had to take place within tight resource constraints. *To assume that we can simply improve school quality by spending more money is hopeful but unrealistic within the economic environment of most Third World countries. Therefore, one must carefully target investment on those facets of the school that most efficiently raise pupil achievement*. (Fuller and Heyneman, 1989)

By the early 1980s the signs of an emerging world educational crisis included doubts about the relevance of the curriculum, imbalances between supply and demand of educated manpower, a growing problem of educated unemployment, widening gaps between urban and rural standards and participation and a concern about the education of girls. There was a growing awareness that future developments in education had to focus on quality as well as quantity.

Considerable research in the UK and in the United Stated has been carried out to explore school effects on pupil achievement. Much less is known about the situation in developing countries. However, recent empirical work suggests that, when pupil background is statistically controlled, *the school institution exerts a greater influence on achievement within developing countries compared to industrialised nations.* (Fuller, 1987). This optimistic finding makes it all the more essential to identify those factors which can raise the quality of education in the developing world.

The search for low cost quality in basic education has been greatly helped by the research carried out on behalf of the World Bank which culminated, in 1990, in a Policy Paper on Primary Education. Indeed most of the available evidence about Third World education comes from research studies, evaluation reports and sector papers prepared for funding agencies. Evaluation reports, in particular, can provide valuable information about the situation in different countries by considering the effects of a package of improvements in terms of agreed outcomes.

Most of the educational research relating to developing countries has been carried out at the behest of external funding agencies. At least initially most major developments in poorer countries are funded by multilateral or bilateral agencies. All these agencies want to satisfy themselves that their money is being well spent, hence the proliferation of *appraisals, review missions, sector assessments, manpower reviews, policy papers, evaluations and completion reports* (King, 1991).

From this wealth of data it is possible to identify five categories of factors which have been studied for their contribution to the quality of education. A summary of these factors is provided below. The categories are:

- Material inputs
- Teacher quality
- School management and structure
- Implementation strategies
- Factors specific to the education of girls

2.2 Material inputs

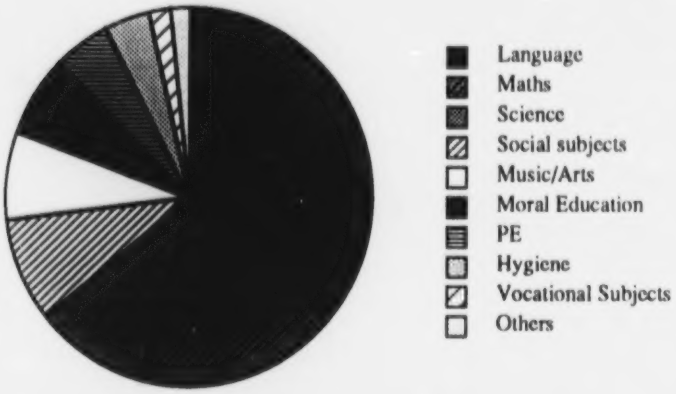
2.2.1 Class size

Within 'normal' ranges, studies report no effects from variation in class size (Fuller, 1987). The World Bank (1988) suggests that there is little to be gained by altering class size if the range is somewhere between 25 and 50. Given the existing evidence, substantial and very expensive reductions in class size would be needed to raise achievement significantly. On the other hand, it may be that increasing class sizes which are less than 50 would free precious resources while apparently not affecting attainment.

2.2.2 The curriculum

According to the World Bank Policy Paper on Primary Education (1990), the curricula for primary schools are remarkably similar across different countries. The relative mean time spent on areas of the curriculum is illustrated in Figure 2.

Figure 2: Available instructional time per subject



Although approximately 36% of time is spent on language, this is often divided between an official language and a local language and this raises questions about the levels of achievement possible in both. The similarity of the content of the curriculum masks diversity in the delivery of the curriculum. Problems with both the scope and sequencing of curricular materials are evident. One study of the reading and mathematics curricula in fifteen developing countries found that steps from one concept to the next were unreasonably large with an insufficient number of intermediate steps.

In a report on primary education in Tanzania, Mosha (in Bude, 1989) refers to the need for serious reflection to be directed at the function of primary education and the relevance of the curriculum to suit this function. In Tanzania, despite government insistence that primary education is to prepare primary pupils for life in the community, the pupils, teachers and parents stress the need to develop literacy and numeracy skills which will enable them to be selected for secondary schooling (based on an academic

Schools Leaving Examination). Subjects essential to the life of the community such as agriculture, homecraft and environmental education are often taught by the poorest teachers with little or no training or resources since these subjects are not examined in the Standard Seven Schools Leaving Examination.

2.2.3 *Language of instruction*

Reference was made in the above section to the difficulties of catering for the demands of a bi-lingual system. Schiefelbein (1990) refers to research carried out in Latin America and the Caribbean which emphasises the importance of the local language for early learners. Where school entrants mostly speak a local indigenous language, that should be the language of instruction for the early stages of reading and writing. On purely pedagogical grounds, the benefits of using the mother language for instruction in the early years now seem to be established, even when the ultimate goal is literacy in the official national language On practical grounds decisions about bi-lingual programmes may depend more on the size of the population group and the number of local languages. Work carried out in Nigeria suggests that if the political will to provide instruction in the local language exists then *it is possible to prepare text books in the mother tongue of many small language groups* (World Bank, 1988) Research carried out in the North West Frontier Province of Pakistan and Peru also emphasises the importance of the local language as the medium of instruction (Bude, 1989).

2.2.4 *Basic instructional learning materials*

There is wide spread agreement that the availability of instructional material has a positive impact on pupil achievement. Early research depended on survey instruments used by the International Association of Evaluation of Educational Achievement (IEA). The questionnaires asked pupils and teachers about the availability of textbooks in the classroom. More recent research gives clearer evidence about the magnitude of the textbook effect. Heyneman, Jamison and Montenegro (1983) carried out a controlled experiment in the Phillipines which indicated substantial achievement gains (up to 0.5 SD higher) in science, mathematics and Philipino. Interestingly the concentrations of textbooks used (2 per pupil or 1 per pupil) made no difference to the levels of achievement.

Very little research has been carried out on **how** textbooks affect achievement. One such study by Lockheed *et al*, (1986) looked at the interaction of textbook availability, teacher training and curriculum content in mathematics. She found that pupils of teachers who used textbooks performed better on the maths post-test. She also found that teachers using textbooks delivered a more structured mathematics curriculum over the year. Some writers (World Bank, 1988, Schielfelbein, *et al*, 1990) suggest that in the early years of education in bi-lingual and multi-lingual countries it is important that textbooks are available in the local language. The World Bank (1988) also suggests that the use of teachers' guides and other guides to help teachers organise classroom activities can supplement the teacher's own knowledge and promote the proper sequencing of learning activities.

The radio is another instructional device which has been the focus of considerable attention. One study in Nicaragua which examined the effects of both textbook and radio instruction on achievement in elementary mathematics, found that radio instruction was more effective (Hayneman *et al*, 1981). A radio project on language arts in Kenya drew on the successful experience of the Nicaraguan programme and again significant increases in pupil performance were noted (World Bank, 1988)

The availability of a school library is demonstrated by a number of studies to influence pupil achievement significantly in countries as far apart as El Salvador, Botswana and Uganda (Heyneman and Loxley, 1983), Fiji (World Bank, 1990) and Malaysia (Reported in Fuller 1987). In some cases the data referred to the simple presence of a library, in others to the number of volumes and to how often the library was used.

2.2.5 High-tech learning materials

Early IEA surveys collected information on the use of school laboratories in the teaching of science. Since then other surveys and studies have been initiated. The results are inconclusive. Considerable resources have been invested in building laboratories and in purchasing equipment but whether this investment is worthwhile in terms of higher achievement is dubious. Fuller and Heyneman (1989) take the view that *Science laboratories hold enormous status in Third World secondary schools but they do not consistently boost student achievement and may not be relevant to teaching basic scientific concepts* . Heyneman and Loxley (1983) found no relation between the use of school laboratories and pupil performance while Wahlberg (1991) notes that *Student laboratory work has a poor record of results....teacher demonstrations, audio visuals and other methods are less costly and more manageable and reliable.* King (1991) quotes two World Bank seminar papers on science education given in 1986 which question the need for science practicals and science laboratories as a vital component in school science.

Information Technology is another area where the present costs make widespread introduction impracticable, particularly in rural areas where the necessary supporting infrastructure does not exist (World Bank, 1990). The International Development Research Centre (IDRC) supported a major case study of computers in secondary schools in Kenya. The final report was cautious about the extent to which an innovation of relatively high cost could prove acceptable, particularly where, as in this case, it was not integrated into the school curriculum and assessment system. The Overseas Development Agency (ODA) is also involved in a large project to introduce computers into secondary schools in India. The evaluation of this project (the CLASS project) is still ongoing.

2.2.6 School buildings and furniture

Not much seems to be known about how construction standards, school maintenance and the presence or absence of other facilities affect pupil performance. The World Bank reports that *dilapidated buildings... and a lack of good ventilation and sanitation facilities are commonplace in African schools especially in rural areas* (World Bank, 1988). One effect may, of course, be to discourage school attendance of pupils and absenteeism among teachers. Other reports refer to the poor condition of buildings as contributing to the lower profile of female education (UNESCO, 1987).

Schiefelbein (1990) suggests that a minimum initial investment for equipment should include a chair and table for the teacher, trapezoidal desks for children and book shelves for the library. Fuller (1987) found three studies that supported the notion of desks as an indicator of improvement. As with textbooks and library books, the availability of a desk is an easily measurable input, but little seems to be known about the use of the desk. It may be that the presence of a desk encourages writing and that this in turn has an effect on achievement.

2.2.7 School feeding programmes

It is known from research that children who suffer from poor health perform at significantly lower levels of achievement. In a study of Ugandan children by Heyneman and Jamison (1980), pupils suffering from malnutrition performed a quarter standard deviation below all other pupils on an achievement test. However, little is known about the possible ameliorative effects of a school feeding programme. One study reported by Fuller (1987) found that the number of years of schooling completed by rural Peruvian males was related to the presence of a school feeding programme. The World Bank (1988) suggests that in some cases a school feeding programme could provide the most effective means of improving a child's ability to learn although they also say that school breakfasts or snacks may be more cost-effective than a school lunch (World Bank,1990).

2.3 Teacher quality

Many of the material inputs referred to in the above section can be measured directly and objectively. The same is not true of factors relating to the quality of teachers where, in general, easily measured proxies of quality have been used. However, even these rough and indirect measures have been shown to relate to levels of pupil performance.

2.3.1 Pre-service training

The World Bank (1988) refers to an increasing body of evidence which indicates that *for primary school teachers, pre-service training that consists of more than general secondary education and a minimum exposure to pedagogical theory is not cost-effective.* Policy makers in some countries have already acted on these findings and have shortened the duration of pre-service training for primary school teachers. However, this conclusion does not seem to be consistent with the findings summarised by Fuller (1987) where in 22 out of 31 studies there was a positive correlation between the years of tertiary teacher training and pupil achievement. More than half of these studies referred to primary schools. Furthermore, research involving 463 primary school graduates in Uganda found that teachers' credential levels (ie post-secondary training) were the strongest predictors of pupil achievement. Clearly there are differences of interpretation which could only be clarified by a close study, or possibly a meta-analysis, of the individual reports.

2.3.2 In-service training

Far fewer studies have been carried out on the effectiveness of in-service training. Fuller (1987) reports only six studies from Egypt, Indonesia, Botswana and Brazil. Five of these studies show a significant positive effect on pupil performance. Greenland (1983) refers to the difficulty of measuring the impact of INSET programmes. Of sixty separate INSET activities researched in Africa, only one half included any kind of evaluation and that was generally in terms of an end-of-course question and answer session. In only six cases was there any follow-up visit to the teachers' school. The reasons given for the absence of evaluation were related to lack of finance or lack of skilled personnel to carry out the evaluation.

The World Bank (1990) cites the value of distance learning methods as being particularly cost-effective and useful for improving teachers' subject knowledge. One study in Tanzania found that distance teacher training was four times cheaper than the conventional method, and that those students who completed the distance learning course performed better on measures of classroom behaviour, although slightly worse in terms of academic knowledge (World Bank, 1988). The findings in 'In-service Training of Primary Teachers in Africa' (Greenland 1983) are less clear cut. In some cases the researchers were unable to ascertain costs, in others the cost was approximately the same for both distance and residential courses and in one case (Nairobi Institute of Adult Studies) the distance upgrading course was higher per subject than courses run at the local secondary school. The absence of evaluation studies of the various INSET activities also made it difficult to monitor the effectiveness of distance courses. Swaziland authorities 'felt' that distance trainees showed less grasp of underlying principles than their residential counterparts. Evidence from the National Certificate of Education (Nigeria) indicates that reading skills for distance learners are often lower than is assumed. The one definite advantage of distance training is the logistics argument. When a vast number of qualified teachers are needed quickly (as when a country gains its independence or declares a programme of universal primary education), the necessary building programme to house all the trainee teachers would take years. An overview of distance INSET shows that it represents a significant proportion of total INSET provision in only five out of the thirteen African countries studied. Other methods of in-service training are described by Hallak (1990) such as 'Cascade' training in Malaysia.

2.3.3 Teachers' academic skills

Few studies in the developing countries have examined how a teacher's skills relate to pupil achievement. Literature from industrialised countries suggests that the teacher's verbal skills are important in boosting pupil achievement. A study carried out by Heyneman and Jamison (1980) on primary school pupils found a strong positive correlation between teachers' verbal proficiency and attainment in language and mathematics. Such direct assessment of actual teaching skills is rare. In most studies proxies of experience, salary and social class have been used as measures of academic skills. Fuller (1987) reports that 13 out of 23 studies which have looked at the effect of teacher experience have found no significant achievement gains. Among those that have noted gains is a study from Malaysia which found that length of teachers' experience which included more pre-service training courses did have a positive effect on pupil achievement. Heyneman and Loxley (1983) also noted positive effects of experience on achievement gains in science. Again in collating material from several research studies, Fuller (1987) reports that out of 14 studies of the effect of teachers' salaries, only 5 studies showed positive effects on achievement. By contrast, Fuller also reports that teachers' social class as a proxy for verbal and cognitive skills has been found to affect achievement positively in 7 out of 10 analyses. The Latin American survey of science attainment by Heyneman and Loxley used the level of schooling of teacher's father as an indicator of social class and noted a consistent positive relationship with pupil achievement.

2.3.4 Teachers' organisation and practice

The length of instruction time stands out as a consistent positive factor in pupil attainment. Classrooms vary enormously in the amount of time actually spent on task. A number of studies have shown that the hours of classtime offered affected reading achievement (Arriagada, 1981, 1983) Heyneman and Loxely (1983) found that hours of instruction spent on general science was significantly associated with achievement.

The assignment of homework has been a subject of research in developing countries from the early 70s onwards. In most cases there is a positive relationship between the assignment of homework and attainment in both language and mathematics.

Research into teaching practice has tended to rely heavily on self reporting by teachers. A study of pupil performance in Brazil found a consistent positive effect for the number and variety of activities reported by teachers. Teachers were asked whether they employed nine different activities including small work groups, dramatic reading, practical work and storytelling. The total number of activities helped to explain pupil achievement. In another study (Loxley, 1984) the frequency of classroom discussions (as reported by teachers) appeared to have no effect on performance on reading and mathematics. However, no mention is made of the quality of these discussions and how they were organised and structured.

Although pupil/teacher interaction has been the subject of much research in the industrialised countries, there seems to be little or no such research relating to the developing countries. In an evaluation study of the Sind School Improvement Project (Heneveld and Hasan, 1989), it was reported that classroom questions were all at the memorization and comprehension levels. The questions tended to be closed questions requiring single word answers. Process questions based on *how* or *why* were rarely asked. The report of a study of the quality of primary education in Tanzania (Mosha in Bude, 1989) also emphasises the role of improved classroom discussions and question and answer sessions as a means of improving pupil performance. The same study suggests that pupils working in small groups will enhance performance.

Another factor which has been shown to have a positive effect on attainment is the amount of time spent on class preparation. (Loxley 1984, Heyneman and Loxley 1983). Research by Udo Bude (1987, 1989) has shown similar positive effects arising from the use of lesson plans in studies carried out in Pakistan and Peru.

One aspect of teacher behaviour which seems to have a consistently positive effect on performance is high teacher expectation. The hypothesis that teachers who expect a high level of achievement will receive stronger commitment and better performance from their pupils is borne out in a number of studies both in primary and secondary schools.

2.4 School management and structure

2.4.1 Effective schools

The World Bank Policy Study on Education in Sub-Saharan Africa suggests that school management is a crucial component of effective teaching and learning. Effective schools have certain characteristics in common. First, there is order in the system. Teachers and pupils attend regularly, records are kept, buildings are clean and maintained. Second, pupils progress systematically thought the curriculum with regular monitoring of progress. Third, teachers and headteachers have high expectations of pupils. Fourth, headteachers take an interest in staff and pupils and interact effectively with higher authorities and the community.

2.4.2 Headteacher quality

As with teacher quality, the research into the quality of headteachers has tended to focus on easily measured proxies for quality - such as salary, length of teaching experience, length of post secondary training and number of training courses attended. Fuller (1987) reports several studies looking at each of these factors and all relate significantly with pupil achievement levels.

2.4.3 Different structures

Other structural aspects of schooling which have been studied include the use of double class shifts and repetition of grade levels. The evidence suggests that the use of double shifts has little or no effect on achievement. Similarly in four studies of grade repetition only one found any positive effect on pupil achievement. The others noted no effect on attainment and no effect on the probability of dropping out of school. Both of these structural factors have considerable cost implications. The research suggests that there is little to be gained by eliminating double shifts or making pupils repeat grades.

2.5 Implementation strategies

2.5.1 Educational change

Verspoor (1989) in his review of educational reform programmes for the World Bank, suggests five basic considerations to be taken into account in the design of educational change programmes:

- top priority should be given to the implementation phase of the process
- effective administrative infrastructures must be in place
- project designs need to be flexible
- arrangements must be included for systematic learning from experience
- attention needs to be paid to the eventual institutionalisation of the programme from the early stages

The profile of a successful educational change programme aims at comprehensive change but adopts a phased implementation strategy with considerable experimentation and testing in the early phases. Curriculum change and teacher training are combined with the provision of educational materials and support for administrative and management training.

2.5.2 Local conditions

Schiefelbein (1990) suggests that local conditions need to be thoroughly understood in order to identify the limitations of a country's educational system. Reporting on recent experiences in Latin America, Schiefelbein identifies a number of factors which limit the quality of primary education. He suggests seven strategies which can be used in different combinations to overcome these limitations:

- providing a bi-lingual programme of instruction with a concentration in the early years on the local indigenous language
- adapting the strategies used by 'New Schools' to improve education in rural schools (these include three week training of teachers, supervision of teachers during first year of operation, supply of texts for pupils, manuals for teacher, library for each classroom and a specified minimum of classroom furniture)
- introducing pre-school education with monitors appointed to work with parents
- using one of a number of alternative strategies to deal with the problem of grade repetition

- appointing and training rural community instructors to counteract the problems of staffing rural schools
- collating and disseminating statistical information which will permit Authorities to identify specific problems
- using research findings to inform educational change

Schiefelbein suggests that a study of the limitations of each educational system could result in a similar list of strategies to be selected in one combination or another to improve the pedagogical techniques in current use.

2.6 Factors specific to the education of girls

Within the emerging educational crisis of the 1980s, the education of girls has been a particular cause for concern. The drop out rate and wastage rate at primary level is greater for girls than for boys. Several studies have either focused on or included a consideration of in-school and out-of-school factors which contribute to the lower profile of female education. The in-school factors include:

- a low starting base for female education
- inadequate provision of separate schools for girls
- difficulty in attracting qualified teachers particularly to rural areas
- irrelevant curriculum
- inadequate teaching and equipment aids

Out-of-school factors include:

- general poverty
- lack of interest by parents in educating their daughters
- socio-cultural bias against female education
- inadequate school/community links

The World Bank Policy Paper (1990) makes several recommendations to counter some of the difficulties. Schools should be located within easy reach (they suggest a distance of less than 2 km) and should provide for the privacy and safety of females. Schools hours, days and seasons should be flexible to suit the life style of the community. Where schooling is segregated by sex, the number of girls' schools should be expanded and the recruitment and training of female teachers should be supported. Programmes should be included which educate parents about the benefits of education for girls.

A report for UNESCO on Universal Primary Education for Girls: Pakistan (1987) also emphasises the need for separate schools for girls where co-education is not feasible. To reassure the community about the privacy and safety of the girls, the school should be surrounded by a boundary wall. Since in many communities there are difficulties for young female teachers living away from home, teachers' residences should be made available. The report also refers to the need to train females for higher supervisory and advisory roles.

The factors which are likely to improve the quality of education are as applicable to the education of girls as they are to boys, but in many countries positive discrimination in favour of girls is essential if the gap between the sexes is to be closed.

2.7 Summary

In this section an attempt has been made to document under various headings those factors which are likely to contribute towards improving the quality of primary education. Table 2.1 provides a summary of this information.

Table 2.1 *Summary of school improvement factors*

Material inputs
- Class size
- Curriculum
- Language of instruction
- Basic instructional materials
- High tech learning materials
- School buildings and furniture
- School feeding programme

Teacher quality
- Pre-service training
- In-service training
- Academic skills
- Organisation and practice

School management and structure
- Effective schools
- Headteacher quality
- Double class shifts
- Repetition of grades

Implementation strategies
- Educational change
- Local conditions

Factors specific to the education of girls
- Neighbourhood school
- Attention to privacy and safety

2.8 Conclusions

A vast amount of fairly recent literature exists on factors relating to the quality of primary education in the developing countries. Much of it is produced on behalf of donor agencies in the form of sector and policy papers. However, the apparent abundance of literature is misleading. The research community involved in this work is small and the same authors are quoted and quoted again in different papers. Their work is collected and commented on in reviews, overviews and readers. The reviews themselves are quoted and repeated at length. The advantage of this close-knit community of researchers is that the findings from the research are available from a range of sources - the disadvantage is that the range of sources is not as wide as it first appears.

The proliferation of books and articles does, however, pay testimony to the perceived importance of primary education throughout the developing world. The World Conference in 1990 conferred international legitimacy on the concerns of primary education. There is a general agreement that investment in primary education in the developing countries does pay off more than in any other sector of education. There is optimism that sufficient research evidence exists to provide a basis for improving the quality of primary education. The World Bank as a major funder and source of information on education in the developing world makes six major recommendations in its Policy Paper on Primary Education.

- *Emphasise learning.* The education process must ensure that pupils successfully complete the primary cycle and acquire the skills set out in their national curriculum.
- *Invest in what works cost-effectively.* Considerable research has been carried out over the last decade to identify such factors. Resources invested in the primary sector must concentrate on inputs which enhance learning.
- *Improve the next generation of teachers.* The general education, pedagogical training and motivation of teachers all affect pupil's learning.
- *Improve management.* School improvement depends on an adequate administrative and management structure.
- *Expand equitable access.* There is a continuing need to increase the supply of school places by every available means and to eliminate discriminatory treatment of certain sectors of the population especially rural communities and females.
- *Finance improvements.* National and donor aid resources for quality-enhancing inputs to primary education should be increased.

Most researchers and commentators on the situation in the developing countries agree that the last recommendation - to increase donor aid to primary education - is essential. Even low-cost quality education is not deliverable within the national economic restraints of the poorest countries (King 1991). There is a minimum level of investment below which no education is possible. Attaining the goal of universal primary education is the only way to ensure that children have at least the chance of a better life.

The Aga Khan Foundation School Improvement Programme which is the focus of the rest of this report is contemporaneous with many of the developments reviewed above. With its emphasis on the professional development of teachers, improving the management of schools and encouraging equal opportunities, especially for females, it is in accord with the World Bank recommendations set out above. The purpose of the study reported here was to explore the extent to which the principles underpinning the programmes proved to be deliverable in practice.

Kisumu, Kenya

NG SEEDS
eyes
head

Photographs by Jean-Luc Ray and Katherine Hinckley
for the Aga Khan Foundation

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3 Kisumu Case Study

3.1 Background and description

Kisumu, Kenya's third largest town, lies in the west of the country on the shore of Lake Victoria. Originally established as the western railhead of the important line from Mombasa, it flourished as a major lake port serving not only Kenya but also Uganda and Tanzania. The political changes of the 1970s brought most of this trade to an end and created problems for the local economy.

In addition to an Aga Khan Education Service (AKES) school in the town, the Municipality is served by approximately 50 primary schools, a number which will rise to 70 this year as a consequence of local boundary change. These schools vary in character, not least because of differences in resources which local communities are able to invest in education. In Kenya, under the 'cost sharing' system, national government supplies teachers on a fixed allocation *per capita* basis. The local community is required to supply exercise books, text books, furniture, equipment and to put up the buildings. This places considerable pressure on parents, particularly in areas of poverty and high unemployment rates. These difficulties are exacerbated by a birth rate of approximately 4% p.a.

The Kisumu School Improvement Project was launched in 1990 and its main objective was to improve the quality of teaching and learning in standards 1-4 of the 50 primary schools administered by the Municipality as well as in the AKES primary school. Its origins can be traced back to several years before this and the genesis of the project is an important background for this evaluation

Responding to a general concern about falling standards within the municipality, the Municipal Education Office commissioned a survey of all primary schools in 1988 to identify the problems and constraints that were leading to low scores on the examination for the Kenya Certificate of Primary Education (KCPE).

Amongst the problems identified were:

- A serious lack of physical facilities including classrooms, desks, workshops and tools for the workshops, and a lack of materials such as textbooks, exercise books, teaching aids, and locally produced curriculum support materials.
- Over-enrolment in classes which was leading to teachers becoming overstretched and under-motivated.
- A lack of effective school management and supervision in individual schools and lack of effective advisory services.

- An inadequate commitment to fund-raising for the schools by Parents' Associations and local leaders.
- The low levels of income *per capita* of communities in the peri-urban schools which makes it difficult for them to fund the necessary facilities.
- Frequent changes in the curriculum and implementation of new programmes which has resulted in teachers' inefficiency in adapting new teaching methods.

Although local efforts were being made to solve some of these problems, it was felt that their resolution required a substantial initiative which would attract external funding.

At about the same time, the Aga Khan Education Service (AKES), which runs a nursery and a primary school in the town had recognised the gap between the essentially child-centred teaching methods in the nursery school and the traditional formal teaching methods employed in the primary school. It was felt that there was a need to close this gap by introducing child-centred methods in the primary school to ensure continuity.

The precise circumstances which led to the Municipality's interests and AKES's concerns coinciding in the project proposal are unclear. What is certain, however, is that the new programme was firmly grounded in the perceived needs of the local community. The project was begun in 1989 with a commitment to three years of funding and the possibility of this being extended to five. Funding of £297,764 (1990 prices) was secured by AKF, 58% coming from the Canadian International Development Agency (CIDA) and the remainder divided equally between ODA and AKF (UK), part of the latter coming from a grant of £40,761 from Comic Relief.

3.2 Project Design

The Project Proposal took on board much of what the Municipality had identified as necessary improvements. As a description of what was to be done, however, it contained an interesting anomaly. While the intellectual rationale was clearly spelt out, particularly in relation to the classroom practices that were in need of change, implications such as how child-centred methods were to be developed and what indicators might characterise success in this were less explicit.

In strict contrast, a highly detailed practical strategy for implementation is spelt out, describing a dissemination programme designed to multiply good practice through change agents working alongside teachers within their own classrooms. Yet, strangely, the proposal does not address the relationship to theory of this potentially unique contribution to the complex challenges of dissemination. This must raise questions from the outset about the extent to which those writing the proposal were fully aware of the challenges facing innovators trying to develop good child-centred learning practices and disseminate the ideas among the teachers.

Although the proposal lacks concrete measurable objectives, it does however suggest that developments should be guided by six principles:

(a) There must be exemplars: the class teachers, the headteachers, the school inspectors must all be able to observe good, progressive teaching in action and be able to discuss with the practitioners what they have seen.

(b) It must come from the bottom: the primary focus must be on the interactions between the classroom teacher and the child supported as appropriate by inspectors, headteachers and parents.

(c) It must be creative: the strategies and teaching styles that teachers eventually adopt must be appropriate to, and stem from, the teachers themselves and the identified needs of the children.

(d) It must be classroom based: the reality of the classroom must be the measure of success or failure.

(e) It must be holistic: learning activities should, as far as possible, cover the whole range of children's emotional, physical and cognitive needs.

(f) It must be sustainable: the Kisumu District will seek to ensure that each participating school has a 'critical mass' of project-trained teachers and that these persons will be supported by the head teachers and the school inspectors.

To accomplish this, a three-phase implementation process was proposed. Phase I would comprise preliminary activities such as the appointment of project staff, and identification of project schools and equipment to be purchased. In Phase II work would begin in three 'model' schools. The main thrust of this phase would be to have the project team work alongside classroom teachers to develop appropriate teaching methods. By the end of this phase, these teachers in the lower primary classes in the three model schools would be designated 'master teachers' and would supplement the expertise of the project team. Phase III was designated as the 'dissemination' phase. It would start by addressing the training of head teachers and school inspectors and begin to involve the parents. This would be followed by an expansion into other Municipal schools using the experiences of the project assistants and the master teachers. The eventual aim would be to disseminate the practices developed in the project across all primary schools in the Municipality.

3.3 Implementation

How were the intentions set out in the project proposal translated into practice? Did the objectives (so far as they could be identified) change over the life of the project? The importance of asking these questions is that they address the crucial issue of whether the initial aims were realistic and whether there is anything to be learned from the design itself.

Phase 1 was undertaken between September and December of 1989. This phase included the establishment of a Project Committee, the recruitment of a project director and five project assistants, the acquisition of capital goods, and the identification of model schools.

The structure of the Project Committee is worthy of note. It is chaired by the municipal education officer and its vice chairman is the chair of AKES in Kisumu who is prominent in the local business community. Other representatives include a headteacher and a representative of the teachers' college. Ownership at the highest level was therefore established as belonging to the Municipality and the local community. If there is a criticism it might be that there is no teacher representative. Furthermore, as the project has moved out into the other schools in the Municipality, it could be that parents of children in these schools might have been encouraged to participate to a greater extent. But despite these criticisms, we were not aware of the Committee being seen as other than supportive of the project.

The main thrust of Phase II of the project was to establish three 'model schools' and in so doing develop a cadre of 'master teachers' who would later work with the project assistants to disseminate good practice in other schools in the Municipality. The initial training of the master teachers took twelve months, and our interviews with the project assistants suggested that it was not without incident. Initially the classroom teachers appeared to feel threatened by the project and to resent the intrusion of the project team. The solution to this problem was to develop a co-operative attitude between the team and the teachers so that the teachers felt that they were working collaboratively with the team rather than competitively. Over time, the relationship stabilised to a collegial relationship. In the view of the project assistants, however, some of the prospective master teachers maintained a negative attitude throughout.

Other problems encountered at this stage are also worthy of note. In the view of the project assistants, it was initially difficult to deal with teacher movement amongst classes which sometimes left classes unattended. The design also involved teachers moving amongst schools and this led to confusion over to whom they were accountable, a problem which led to practical problems for the headteachers if the teachers were absent from work. However, these were essentially teething troubles and the evidence would seem to suggest that the development of 'master teachers' through collaborative staff development with the project assistants in the teachers' own classrooms worked at least in the sense of a 'system' for training. Whether it resulted in adequately developing the required skills for all the master teachers is, as is discussed below, less clear. Furthermore, what was seen as 'good practice' is difficult to ascertain because there is little documentary evidence, the substantial effort of the project having gone into achieving success rather than recording how it was achieved.

Phase III comprised the dissemination of the project to other schools. All the project-trained teachers (eight from each model school) were designated master teachers. Work began in the first three schools in January 1991. The strategy adopted was to pair each new school with one model school in a way which would provide a team of one project assistant and one master teacher for each stream. Each team would be in a school for a period of six months and by December 1992 a total of 15 schools will thus have been involved.

Once again the logistics of the design seem to have worked but there were several problems. Perhaps the most important was that a decision had been made to pay each of the master teachers a small supplement in recognition of their skills and to compensate for the inconvenience of moving amongst schools. However, when teachers in the new schools had gone through the same skill enhancement process, no payment was offered to them. This caused resentment. Furthermore, many teachers were unhappy because the status of 'master teacher' was attained simply by having been in the right school at the right time. There was no apparent consideration of the merit of individual master teachers, nor did teachers from other schools have the opportunity to compete for these posts as the project progressed.

It is interesting to note that the original proposal recognised that problems of this kind could arise and offered systematic procedures which would have made master-teacher status more competitive. Thus it is explicitly stated that those appointed would only receive a supplement if they met certain required standards. There was no exploration of what these standards might comprise, but it was hoped that teachers who had attained 'master teacher' status and served in that capacity for not less than 12 months might receive some sort of certification.

The project adopted the simpler strategy of promoting teachers in the three model schools in the first instance to avoid antagonism and the risk of having a negative effect on the way that teachers viewed the project. As master teachers have left they have been replaced by appointees identified as particularly meriting promotion to this position. In later stages of the project the arguments for and against rejuvenating the support team by making limited period appointments of master teachers might be worthy of debate.

3.4 Impact in the classroom

By the end of 1992 the Project will have reached a total of 15 schools, but these will have reached different stages of development. It was therefore decided to explore the impact of the project by looking at its effects in one of the 'model' schools, in one of the schools which had been through the subsequent development process and in another in which the support team was currently working. In addition data were gathered in a fourth school which had not yet been formally involved.

The proposal was clear about what was seen as inadequate in primary education and insightful about the likely reasons for this. However, as was indicated above, discussion about what the project should aim to achieve other than, by implication, circumventing these difficulties, was limited.

This was not an easy context in which to conduct an evaluation. Clearly the extent to which the various negative features identified in the proposal were still manifest was open to exploration. But what would be the indicators of change towards an undefined set of goals? The question was made doubly difficult because while the proposal implied that the goal might be a move towards 'progressive child-centred' methods, early discussions with the project staff suggested that they had reservations about applying a totally child-centred approach. Instead they felt that they were trying to develop more 'activity-based' methods. This was not a term which had been used in the proposal and no documentary evidence was available to clarify its meaning.

To circumvent these difficulties, the evaluation team adopted a 'descriptive' strategy which included indicators of both progressive and traditional teaching methods. To explore the impact of the project in the classroom we gathered data about teaching methods, the 'content' of the curriculum, classroom environment, pupil learning and pupil attainment. Each of these is discussed briefly below.

3.4.1 Classroom environment

A profile of the classroom environment was recorded by the evaluators. Class size ranged from 72 through to 48 and interestingly, the larger class sizes were in the project schools. Furthermore, despite the larger class size, attendance on the days in which our observations took place was highest in the 'model' school (school 1) and in the 'trained' school (school 2). One can assume that some effort was made by the schools to ensure a reasonable turnout on days when the research was taking place, but the high attendance achieved by the project schools is at least supportive of the argument put forward both by the project team and the teachers that involvement had improved children's attitude and motivation and had led to higher attendance rates. Interestingly however, one teacher in the school in which training was taking place (school 3), explained the absence of five pupils as resulting from their having registered at the beginning of term but subsequently having failed to turn up because their parents could not afford to pay their contribution to the building fund.

All of the classrooms, including those in the non-project school, were organised in groups, with grouping by 'ability' pertaining in all but the 'non-project' school, (school 4). It is important to recognise, however, that this indicates only the seating arrangement for the class. The question of whether children learned in groups is different and is addressed below.

It was only in school 1 that there was an adequate supply of textbooks. Textbook provision in Kenya is the responsibility of the parents and their absence reflects the substantial costs which can be involved. One headteacher suggested that the problem was exacerbated by the frequent changes which took place to the curriculum which meant that textbooks could not be handed down from one child to the next. His estimate was that parents could face a bill of up to £15 a year for books which was well beyond their means.

It is also worth noting that resource materials such as paper for making wall displays was freely available in all but school 4. One of the targets set by the project has been to encourage parents to make more resources available to schools for such materials, and their availability supports the claims that this has been a fairly successful strategy. It is also reflected in the attempts which communities have made to improve furniture and the working space in classrooms, although it was only in school 3 which had somewhat smaller class sizes and lower attendance rates that there was any semblance of adequacy in this.

A final comment must be made about the physical appearance of the classrooms. In contrast to the bare unused walls associated with traditional classrooms in Kenya, the walls were being used as a learning resource by all the project teachers. Perhaps the clearest evidence that this was a project effect came from school 3. When our original classroom observations took place shortly after the school's involvement with the project team had begun, little use was being made of the walls. When we returned a month later, the physical appearance had changed dramatically and the teachers claimed that pupils were beginning to use wall displays to learn on their own. The only misgiving we had was that there was a strong similarity about the way in which the walls were used as one moved from one class to the next. It may be that as teachers gain experience of using the methods promoted by the project that they will adopt the principles more clearly to suit themselves.

3.4.2 Teaching methods

The main source of information on the teaching methods used in project classrooms comes from classroom observations and interviews with teachers.

Table 3.1 shows the percentage of lesson time (through a whole day's teaching to their standard 3 class) taken up by five teacher-centred activities. The data is shown for nine teachers. Our observations also recorded whether the interaction related to the whole class, a small group or an individual pupil.

***Table 3.1** Percentage of lesson time dominated by teacher-led activities*

School		**1 'model'**		**2 'trained'**		**3 'training'**			**4 'non-project'**	
Teacher		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Activity										
'Teacher talk' related to lesson content	whole class	34*	49	47	36	36	33	33	37	47
	small group	14	5	14	14	4	0	11	1	0
	individual pupils	0	7	7	1	1	9	15	0	0
Classroom Management	whole class	16	21	10	5	10	21	6	4	14
	small group	6	1	25	8	3	8	0	0	0
	individual pupils	1	3	1	3	0	4	6	0	0
Teacher initiated questioning	whole class	44	28	38	29	11	18	26	36	36
	small group	11	8	24	27	1	7	1	0	0
	individual pupils	0	2	1	8	13	14	14	1	1
Non-lesson related management	whole class	0	0	0	0	0	0	0	0	0
	small group	0	0	0	0	0	0	0	0	0
	individual pupils	0	0	0	0	0	0	0	0	0
Discipline	whole class	9	14	1	1	4	1	0	3	0
	small group	2	2	0	0	0	0	0	0	0
	individual pupils	14	15	0	0	6	3	1	14	15

*The figures shown indicate the percentage of the teaching day during which an activity took place. The categories are not mutually exclusive.

There were surprisingly few differences amongst the teachers and the schools. The most frequently used approach involved the teacher talking, demonstrating, explaining or asking questions, all of which are characteristic of traditional didactic approaches in the classroom. Classroom management took up less time in schools 3 and 4, perhaps suggesting a less complex learning environment. 'Non-lesson management' which would have included distractions from the intended task of the lesson were non-existent and while discipline was more of an issue in school 1, there was nothing to suggest that these were 'problem' classrooms.

There were, however, differences amongst teachers in the extent to which they focused their teaching exclusively on the whole class. In the 'non-project' school, teacher-initiated questions were directed almost exclusively to the whole class. In school 3 where the team was actively involved at the time of data gathering, questioning was split quite evenly between the whole class and individual pupils. The hypothesis might therefore be that while the project has not markedly altered the extent of time devoted to didactic methods, it has adjusted the focus towards the needs of individuals.

Unfortunately, the data do not support this hypothesis. In 'model' school 1, the focus of questioning was almost as markedly on the whole class as it was in school 4. School 2 was different again. There was still a marked emphasis on questioning of the whole class, but a focus on groups was almost as great. We would have expected changes in pupil questioning to be a substantial component of a move away from didactic teaching methods and we were therefore surprised that the difference between the project and 'non-project' schools was not greater. The situation in the 'model' school also surprised us and it raises questions about the extent to which changes in method are self-sustaining, and what kinds of ongoing support might be needed after the project team has moved on.

Lest these comments appear more critical than is intended, it is important to understand that we would have been even more surprised if the amount of time devoted to didactic teaching had been substantially less. The issue of optimum teaching style is controversial and probably the best approach is to ensure that the method used is the best to fit the purposes of teaching. If didactic teaching is used alongside equally frequent opportunities for meaningful group work and individualised learning, then the teacher's 'methods kitbag' is probably replete. We will turn below to questions about the way in which children learned in these classrooms.

3.4.3 Learning

In a move away from didactic teacher-centred methods of teaching we would expect to see pupils learning in ways other than 'reception' of teacher-dominated delivery. In particular we would expect to see learning tasks being differentiated to meet the needs of individuals or groups, group learning in which individuals have different and stimulating roles and pupils actively involved in initiating discussions with their teachers.

In this study we again used the observation of classrooms in the case study schools to measure the extent to which pupils were learning in these ways. Our findings are shown in Table 3.2.

Table 3.2 Percentage of lesson time featuring various pupil learning activities

School		1 'model'		2 'trained'		3 'training'			4 'non-project'	
Teacher		1	2	3	4	5	6	7	8	9
Activity										
All pupils working on same tasks	D	89*	87	81	74	94	94	96	97	82
	P	0	0	0	0	0	0	0	0	0
Active group work	D	31	5	25	19	0	7	0	0	0
	P	0	0	5	0	0	0	0	0	0
Group work-pupils not involved	D	0	0	0	0	0	16	0	0	0
	P	0	0	0	0	0	0	0	0	0
Individual tasks	D	7	0	13	16	0	0	0	0	0
	P	0	0	13	4	0	0	0	0	0
Interactive pupil discussion	D	3	1	11	10	0	0	0	0	0
	P	5	1	6	0	0	7	0	0	0
Pupil response to teacher-initiated questions	D	38	34	35	45	21	28	25	45	32
	P	0	1	9	0	0	0	0	0	0
Pupil-initiated discussions	D	0	0	0	0	0	0	0	0	0
	P	4	1	0	0	0	0	0	0	0
Pupil demonstration	D	6	0	0	1	3	0	0	1	0
	P	8	3	4	5	0	4	2	5	1
'Off-task' activities	D	2	3	0	3	6	0	0	1	0
	P	20	16	30	37	42	26	27	30	28

D = dominant activity P = activity 'present' but not dominant

*The figures shown indicate the percentage of the learning day during which an activity was dominant or present. The categories are not mutually exclusive.

The tasks being tackled in all of the classes were seldom differentiated. It was only in school 2 and to a lesser extent in school 1 that at least part of some of the lessons could be characterised as involving work where pupils were allocated clearly individualised tasks. In schools 3 and 4 there was no evidence of differentiation either at the individual or the group level. The suggestion here is that while the project has not encouraged a substantial shift towards differentiation by need, it has encouraged some moves in that direction. Whether we should have seen or expected a greater shift than these data suggest is difficult to answer. Meaningful differentiation is demanding, especially at the individual level. Given the large class sizes we observed it may be impracticable unless alternative approaches such as team teaching are used. It would, however, be less difficult to differentiate amongst the needs of groups and there may be scope for greater attention to this in the future.

In contrast to individualised work, the project would appear to have had a greater influence in encouraging group work. The evaluators were careful to differentiate between the group seating arrangement which characterised all of the classrooms and group learning which involved tasks which were set specifically for groups and expected active group participation. Sitting in groups to carry out teacher-centred whole class activities is of doubtful importance. Active participatory learning in groups involves the development of interpersonal skills and is both more demanding and rewarding. Successful group work is difficult to achieve and it was therefore encouraging to note that in schools 1 and 2 where it was being implemented, most pupils seemed to be actively involved. The presence of 'off-task activities' was often associated with individuals in groups who failed to involve themselves in the work of the group. However it is interesting to note that pupils were just as likely to be 'off-task' in school 4 where no group work was observed.

The dominance of teacher-initiated questioning was again underlined in these data, there being little difference amongst teachers or schools in this regard. There was a trace of pupil-initiated discussion in school 1 and a notable presence of meaningful interactive pupil discussion in school 2 reflecting that school's emphasis on group work. These are important indicators of at least some confidence amongst pupils in taking the initiative for their own learning and are in stark contrast to the situations in the 'non-project' school where we encountered no interactive pupil discussion and no pupil-initiated discussions.

Overall, these data suggest that the project has encouraged some changes in the way pupils learn, particularly through the introduction of group work. However, even in this area the shift has not been as substantial as might have been expected in a movement towards child-centred learning. We did see more 'activity' in the classrooms than would have been expected in a strictly teacher-centred didactic environment, but as these data indicate, it was typically teacher-centred activity in which all children were partaking of the same active learning.

There are clearly many questions which can be asked about the teaching styles and the learning methods which are reflected in the classroom observation data. As we have already indicated, the substantial presence of teacher-centred work is not a problem in itself provided it is balanced by at least some moves towards group and individualised approaches. In some classes we saw some of the former. But perhaps more worrying was that the level of debate about why particular methods were or were not being used was not as great as might have been expected both within the project team and with the teachers when we discussed these matters with them. There were of course notable exceptions, but the frequent references to the 'SIPAK Method' which we encountered without discussion of why it was being used and what it actually meant raises a question about whether the philosophy has been truly assimilated by many of the teachers.

3.4.4 *Content*

One of the constraints to progress identified by the project proposal was the dominance of curriculum content dictated by textbooks which are in turn dominated by the requirements of the Kenya Certificate of Primary Education (KCPE). The only explicit performance criterion offered in the proposal indicates that

> The Project will be successful if the deficiencies in present classroom practice ... have been reduced and have been replaced by methods which are more appropriate to the developmental needs of the individual child, and still achieve examination success.

We have already outlined the main changes which took place in the methods of teaching and learning, but what influence did the project have on the content of the curriculum?

The injunction 'still to achieve examination success' implies that changes which limited the 'coverage' of curriculum content would be difficult. In interview, both teachers and headteachers suggested that the amount of coverage expected was too great. Examination of the content also suggested that there is a substantial emphasis on fairly low-level skills and that the application of skills and concepts to solve practical problems or to tackle tasks requiring higher-order skills is limited. It was not therefore surprising that in general we found that lessons still focused on essentially the same content as would have been expected in traditional classrooms. The only exception noted in our classroom observations was that teachers were less likely to feel obliged to stick rigidly to preset allocations of curriculum time.

However, it is important to understand that the main claims made for child-centred learning hinge on its potential to add value to the learning experience through the enhancement of skills and competences which are ill-developed in more passive and reception-based traditional contexts. Indeed there is evidence that at least in the short term there can be considerable tension between the content-driven demands of traditional curricula and the skills orientation of child-centred procedures. In previous studies teachers have claimed that while child-centred learning is deeper, it takes longer to achieve. In situations where teachers are held accountable for their pupils' success in 'high stakes' external examinations (such as the KCPE) they may consequently be reluctant to risk reducing curriculum coverage by changing their methods, not least because the kinds of competence best developed through child-centred approaches are not reflected in these examinations.

As evaluators we were therefore interested to explore whether teachers were offering their pupils the opportunity to develop higher-order competences such as problem-solving and thinking skills, and broader competences such as leadership skills, group skills and personal initiative. We measured this as part of our observation study by completing a profile for each lesson which recorded instances in which pupils had the opportunity to develop 11 such competences. Our findings, which indicate the percentage of lessons in which such opportunities occurred in each school, are shown in Table 3.3.

***Table 3.3** Percentages of lessons in which at least some pupils were given the opportunity to develop various competences*

School	1 'model'	2 'trained'	3 'training'	4 'non-project'
Competence				
Working with others	50	50	36	0
Working cooperatively in groups	50	50	25	0
Solving problems	50	75	42	40
Acting with confidence	100	100	67	50
Leadership skills	100	100	33	0
Initiative	87	100	16	0
Creativity	100	100	25	0
Practical skills	87	100	58	0
Interacting with teacher	100	100	50	0
Expressing opinion confidently	100	100	58	0
Thinking for oneself	87	100	25	0

The detail of this data suggests that some skills, such as working together and solving problems, are less frequently offered than others, although this is not in itself surprising; giving pupils the opportunity to interact freely with the teacher or take independent initiative can be assimilated into on-going assumptions about the teacher's professional role while 'problem-solving' depends on there being a problem to solve in a particular lesson. We would not therefore have expected opportunities to develop all of these competences to be available in all lessons, and if anything we suspect that the apparently rich situation in schools 1 and 2 reflects in part on the teachers' being conscious of their work being observed.

More important, however, is the general pattern illustrated by these data. Whatever the limitations on a movement towards differentiation by individual need and high quality groupwork suggested above, the methods used by the project teachers were clearly enhancing the range of opportunities given to pupils. The striking contrast between schools 1 and 2 and school 4 illustrates the magnitude of difference. The intermediate situation of school 3 indicates the learning effect of project participation by teachers. The project has clearly increased the range of competences which pupils are given the opportunity to develop. The next question is whether in fact they used these opportunities to advantage.

3.4.5 Pupil attainment

The systematic measurement of each individual's mastery of the competences described above was beyond the resources available to us in this study. However, to explore pupil attainment solely in terms of more easily measurable cognitive outcomes would not have reflected the rationale which lies behind the movement towards child-centred approaches to teaching and learning. To circumvent this problem we used a group estimate measure of competence in each classroom. This required the evaluator to estimate the proportion of pupils who, when given the opportunity to use one of these competences, appeared to cope as well as might have been expected for a child of that age.

The results are shown in Table 3.4. Thus, for example, when pupils were given the opportunity to act in a way which reflected self-confidence, the evaluator estimated that 100% of pupils found this possible in school 1, 87.5% in school 2, 55% in school 3 and only 20% in school 4. Because of the very limited opportunities to develop these competences which were given to children in school 4, it is difficult to know whether they lacked these skills or were simply not given the opportunity to use them. The difference between school 3 and schools 1 and 2 is not sufficient for us to substantiate any claims for project effects in nurturing these competences. If anything the data suggest that children harbour a substantial repertoire of competences which are simply not tapped in traditional classrooms.

Table 3.4 *Percentages of pupils who appeared to be coping with the opportunity to develop various competences in the classroom*

School	**1 'model'**	**2 'trained'**	**3 'training'**	**4 'non-project'**
Competence				
Working with others	50	50	50	-*
Working cooperatively in groups	50	50	50	-
Solving problems	63	80	100	25
Acting with confidence	100	87	55	20
Leadership skills	75	87	80	-
Initiative	75	10	50	-
Creativity	75	100	100	-
Practical skills	63	100	84	-
Interacting with teacher	100	100	75	-
Expressing opinion confidently	87	100	100	-
Thinking for oneself	50	50	100	-

* - indicates not applicable because children were not given the opportunity

One of the fears which teachers associate with changing their teaching style is that their pupils may not be as successful in mastering the kinds of skills for which teachers are typically held accountable. Encouraging a move towards child-centred learning is frequently associated with this fear because it is more demanding of learning time, at least in the initial stages.

It was therefore important that the evaluation should include a measure of attainment in basic skills. Although it is a long-term aim that child-centred learning should lead to an overall increase in attainment because learning is deeper, we would have been surprised if this effect was particularly manifest in the project schools given the short period over which pupils had been exposed to the new approach. Our hypothesis was however that pupils in the project schools should perform no worse than pupils of the same age and background in non-project schools.

Tests were constructed in Mathematics and English to reflect the levels of attainment expected of pupils in the Standard 3 classes with which we were working. The results of their being applied in the four case study schools are shown in Table 3.5.

***Table 3.5** Percentages of pupils displaying competence in mathematics and English skills*

School	1 'model'	2 'trained'	3 'training'	4 'non-project'
Mathematics				
Counting	98*	97	98	97
Number recognition	94	64	93	67
Writing numbers in words	85	48	65	35
Understanding number size	67	52	69	54
Addition with carrying	94	89	74	78
Addition without carrying	91	71	75	78
Subtraction without borrowing	85	83	79	71
Understanding simple problems	63	53	83	43
Understanding currency	46	21	48	43
English				
Recognising pictures and matching names	97	97	94	90
Comprehension	45	58	62	39
Copying words	87	87	85	69
Writing names of objects	78	77	67	50
Constructing sentences	72	43	40	29

*The figures shown indicate the percentage of Standard 3 pupils who answered questions in these areas correctly.

The differences in mathematics are marked but show little relationship with the 'project status' of the schools. Pupils in schools 1 and 3 are consistent higher achievers, but there is little likelihood of high achievement in the latter being a project effect, given that school 3 was so newly involved. In fact the main conclusion which can be drawn from these data is that comparing schools on the basis of raw test results can raise more questions than it answers. The difference between schools 1 and 2 is as likely to be a consequence of catchment area and resources (1 textbook per pupil in school 1 compared with 1 to 14 pupils in school 2) as it is to be a project effect. Whether the low rating of school 4 is a result of it not yet having been involved in the project or a reflection of fundamental differences between it and school 1 is impossible to tell.

Notwithstanding these observations, the outcomes of the English test raise different issues. The differences between schools 1 and 2 are not nearly as marked, and it is only in 'comprehension' that school 3 pupils appear to be more competent than those in school 2 (or, for that matter, in school 1). Pupils in the non-project school are outperformed by schools 1-3 in all areas, and in most cases quite substantially. The hypothesis which arises is that while it was not possible to demonstrate project effects in mathematics attainment, changes in the way that language is dealt with in the project have been instrumental in improving pupil performance in this area. Our observation would be that this might in part be explained by the substantial use made of wall displays related to language and the introduction of teaching aids such as flash cards which were used widely in the project classrooms we visited.

3.5 Broader impact

An innovation which influences teaching and learning in the classroom is likely also to have effects at a broader level. Indeed, we have already shown that the AKF model for school improvement is built on the assumption of changes in individual schools, their management structures and the professional development of staff. In evaluating this project we therefore used interviews and questionnaires with parents, teachers, headteachers and project staff to explore the impact that it had on the teachers themselves, on the school and on the wider communities in which the schools were located.

3.5.1 On teachers

The teachers to whom we spoke were positively disposed towards the project. They felt that it had brought about worthwhile changes in what happened in their classrooms and saw the outcomes as being of benefit to pupils. A generally favourable attitude also emerged from the questionnaire data. The features which were least attractive were the additional workload which they felt followed, the general lack of resources which led to excessively large class sizes and the pressure they were under to deal with an overcrowded curriculum. The last was seen as particularly problematic because it was in conflict with the kinds of methods advocated by the project.

Interviews with the master teachers and project assistants, however, suggested that the positive attitudes which generally prevail today should not be taken for granted. Their early experience in particular had occasionally found them dealing with hostility and suspicion. The project team felt that it now had developed the skill of working alongside teachers rather than 'instructing' them and this was seen as the key to success.

The way in which the team works with teachers is almost certainly crucial to the success of such an exercise and the evidence we have available would suggest that substantial benefits have accrued in the Kisumu schools. However, we were left wondering what the ideal 'project teacher' might be. We were surprised to find that only about half of the teachers completing the questionnaire rated themselves as being fully convinced of the value of activity-based methods, even if they were supportive of the project. This contradictory stance, taken alongside an approach in some classrooms which resembled the application of a formula rather than the adaptation of a philosophy, again suggests that there may be a need to give greater emphasis to helping teachers to understand why they are being asked to reconsider the way they teach.

3.5.2 *On schools*

We asked headteachers about the impact the project had on material requirements. Headteachers of the model schools noted that additional staff were needed to replace the master teachers who were out of their school, but schools entering the project more recently have not incurred costs of this kind. In addition, very few headteachers suggested that the project directly resulted in the need for extra accommodation, although one to whom we spoke identified the project as being a useful stimulus to encourage the local community to provide better buildings.

Interestingly, it was relatively inexpensive and superficially trivial costs which topped the list of additions. Two-thirds of schools had to provide additional security for their classrooms, one teacher in interview indicating that amongst the most useful additions to her 'kitbag' had been a padlock (which she had to buy herself). The headteacher of school 3 had been obliged to shift his classes around to give those in the project the most secure rooms. Schools had also to supply additional resource materials such as paper for making wallcharts and teaching aids. Interestingly no headteacher mentioned the purchase of textbooks, the lack of which is clearly an impediment to learning in many classrooms but the purchase of which is clearly seen as the responsibility of parents.

Presumably one of the reasons that headteachers were willing to accept these extra demands was that the project was seen as being beneficial to the school. Our data certainly suggest this to have been the case. Almost all the headteachers felt that their staff's motivation had increased substantially and almost as many felt that the new methods had had a beneficial influence on pupil attainment. Truancy levels were also seen to have fallen. Many headteachers were also of the opinion that although training had been confined to teachers of standards 1-3, the project had exerted an influence beyond this group.

3.5.3 *Relationships with the community*

We were interested to know what impact the project had had on the wider community and in particular on the relationship between parents and the school. Perhaps the best measure of this is that as part of our evaluation we invited parents from each of the project schools to meetings to discuss the project. We were surprised by the large turn-out in each case. A number of parents reported that they had observed changes in their children that convinced them that the project was making a difference. The children have become more responsible and more curious and they keep themselves busy by drawing various objects around the house. They also seem motivated enough to do their homework and are eager not to miss school. Most of the parents to whom we spoke appear to have developed positive attitudes towards the project. Several were concerned lest the changes were not continued through to Standard 8. A number indicated their willingness to support the school by continuing to provide materials once the project ends, although many expressed concern about this because of competing pressures on their budgets.

The headteachers generally felt that parents were now positively disposed to the project, although several pointed out that at the beginning some had been slow to accept the benefits that the project would bring. It was only once they had seen changes in their children that they began to appreciate what was being done. This popularity was however seen as bringing problems, particularly in the high school roles and attendance rates which although a positive reflection on the perceived value of education placed even more pressure on teachers.

3.6 Costs

No matter how successful a project might be, there is little point in supporting it if the cost is prohibitive. We were therefore interested to explore the costs incurred by the project as it progressed and to identify which aspects were the most cost-effective. We deal with the last question in our conclusions, but at this point we will simply document the costs and analyse them in institutional terms both through unit costs per pupil influenced and per teacher trained. In addition we will try to compare these with known existing school costs, although we had some difficulty obtaining accurate figures for this in Kenya.

3.6.1 Documented costs

Table 3.6 shows the project budget for the three financial years 1989/90 to 1991/99 and the project expenditure for each. The former is shown in £ Sterling and the latter also in terms of % of total expenditure. To keep comparisons simple, a conversion rate of £1 = 55 Ks which was current at the time of writing has been used. This underestimates the cost in £s in the early years of the project when the exchange rate was better, but the alternative of converting on a month-to-month basis according to the fluctuating rates over the period was beyond the resources of this study.

***Table 3.6** Project budget and expenditure*

Project Budget		**1989-90** **£34,218**	**1990-91** **£45,629**	**1991-92** **£75,480**
Project Expenditure				
Project director		£3,556 (18%)	£14,754 (47%)	£16,536 (25%)
Teaching aids		£2,334 (12%)	£3,751 (10%)	£6,782 (11%)
Recruitment		£1,882 (10%)		
Workshops			£880 (3%)	£1,204 (2%)
Project assistants			£10,745 (29%)	£13,823 (21%)
Master teachers			£1,092 (3%)	£5,164 (8%)
Equipment		£4,580 (24%)		
Project office		£799 (4%)	£5,605 (15%)	£6,388 (10%)
Transport		£5,781 (31%)	£343 (1%)	£11,050 (17%)
Visit to Karachi				£5,107 (18%)
Approximate number of teachers influenced	(i) Most optimistic assumption*	8	32	68
	(ii) Least optimistic assumption	8	36	36
Approximate number of pupils influenced		560	1680	4760
Cost per teacher influenced	(i) Most optimistic assumption	£2,367	£1,162	£971
	(ii) Least optimistic assumption	£2,367	£1,549	£1,835
Cost per pupil influenced		£34	£22	£14

N.B. The project budget and expenditure do not total the same (a) because of exchange rate fluctuation, (b) because of underspending and (c) because of account has only been taken of major items of expenditure.

*An even more optimistic assumption would allow a cost reduction of approximately 10% if amortisation of capital costs were included (see text).

The most instructive figures are those which indicate the unit costs of training teachers and the consequent costs of influencing pupils. Two interpretations are offered for the former.

In the least optimistic situation it is assumed that the direct effect of the project is only felt by teachers during their period of training. After an initial high cost of training the first eight master teachers, the costs fell to approximately £1550 per teacher in 1990/91, although this does conceal the cost of appointing additional staff to the model schools which was incurred by the Municipality. The project team having now established a pattern of training 36 teachers per year over successive six-month periods has thus established a training cost of approximately £1800 per teacher. This cost would remain static if the same training pattern were to be preserved in future years.

The second estimate makes the more optimistic assumption that teachers continue to be influenced by the project even after their initial training period. The number of teachers influenced is consequently cumulative and after the initial high cost of the first year has fallen to £971 per teacher by the end of the third year. Extrapolation to year 5 of the project suggests that if the rate of training remains constant the unit cost per influenced teacher will fall off to approximately £500 p.a. with 100 teachers having gone through the training process. In this model, of course, training, once established becomes a recurring cost. The real necessary annual cost per teacher trained probably lies somewhere between the two figures for training and substantially below the 'optimistic' cost for continuing influence. Neither of these costs takes into account the additional in-service contribution to other schools by the project, nor does it take account of the longer period of amortisation which should be assigned to capital expenditure on vehicles etc. However, while both of these would reduce unit costs significantly, we consider it more important to focus on the costs of training pioneered by the project. If the project does continue beyond its current funding period it will be very important to develop ways of delivery which are capable of replication elsewhere in Kenya. More accurate costing must therefore become part of the ethos of any extension and the insights offered here can only be tentative at the present time.

The cost per student influenced has, however, fallen progressively as the project has progressed because, as our findings have shown, there is a continuing influence on teachers' practice after the initial training period. Thus, the initially high cost of the early years has fallen off to approximately £10 per pupil, a cost which would be halved again in three years time if dissemination were to continue at the same rate for a further three years.

The largest individual cost to the project has been that of the project director. Having been appointed on an ex-patriot basis, his costs are currently around £16,500 p.a. By British standards this is a modest sum for a person of the director's experience, but a substantial sum in comparison with other salary costs in Kenya. The six project assistants and transport costs are the next most expensive elements of the budget. Surprisingly little has been spent on international travel (8% of expenditure in 1991/92) and running costs associated with the project office. Equipment and teaching aids also appear to have modest budgets, at least by British standards.

3.6.2 Comparison with local costs

These costs, especially interpreted in terms of unit cost per student, may appear modest from a British perspective. The same is not necessarily true in comparison with costs in Kenya. It is important, however, to distinguish between the initial costs of training and the recurring costs of sustaining the initiative once it is established in schools

The principal financial contribution of the Municipality to the training component of the project has been the salary costs of the master teachers and those who have been appointed to their schools to replace them while they are involved in the training of others. It will also be true that some element of the advisers' costs will have been devoted to the project through their contribution to in-service provision. The latter can more appropriately be viewed as a redistribution of resources rather than an addition to costs; to our knowledge, no additional advisory staff were appointed as a consequence of the project.

The schools themselves incurred costs in implementing the project through improving accommodation and security and providing more teaching materials to supplement those made available by the project. The extent of capital cost required seemed to vary amongst schools. The extent to which it was a true cost as opposed to a necessary cost for which the project was a catalyst is also arguable. There was little evidence that obtaining funds of this kind was an obstacle to participation, although even the bare minimum of security and desks appeared to pose a challenge in schools serving poorer communities.

The additional materials required as a consequence of adopting new methods are however recurring costs as many are consumed in the learning process. Estimates from the case study schools suggest that these run at approximately £1 per pupil per annum. There seemed to be reasonable optimism amongst headteachers and parents that this contribution could be sustained. The only other recurring cost which would advisably be incurred after training would be external support, but the cost and the nature of this would be a decision for later stages of the initiative.

3.7 Conclusions

3.7.1 Has the Project been a success?

This project has undoubtedly brought about changes in many classrooms and these are almost certainly an improvement on the situation reported in the Municipality's pre-project analysis. However, as we have already indicated, the qualitative nature of the changes expected of the project were not made clear in the proposal. Consequently we find it difficult to state unreservedly that these changes represent a good return on the substantial investment of time and money which the project represents.

The positive side of the balance sheet is that despite the substantial impediments of excessive class sizes and the dearth of basic learning materials such as textbooks in most classrooms, worthwhile changes have taken place. In particular, most teachers have substantially broadened the range of competences which they are developing in their classrooms and several have come to introduce sound and meaningful groupwork for at least part of their teaching. This has led to greater attention to group and in some cases individual needs, although whole class teaching is by far the dominant mode for most teachers. Classrooms have been transformed from being somewhat barren and uninteresting in appearance to offering a stimulating learning resource and a motivating repository of the pupils' own work.

The negative side is that differentiation of tasks according to the needs of groups or individuals was limited and there was a surprising lack of involvement in projects or in work which integrated subject topics, although the latter in particular can be explained at least in part by the rigidity of the national curriculum in Kenya. There tended to be a strong cross-classroom stereotype which suggested that in many cases although tutors had successfully brought about change, there was a somewhat mechanistic uptake by teachers. We also felt that in discussion with several master-teachers, there was a lack of self-criticism. This raised questions for us as to whether the project has devoted sufficient resources to systematically questioning what it was trying to achieve. What, for example, is actually meant by 'activity-based' learning? In what ways is it different from 'child-centred' learning? What claims are made for it? How can 'good' and 'less-good' examples of it be recognised? And in turn, how should the project be monitoring the quality of its efforts to bring the desired changes about?

The gist of this is that as 'outsiders' the evaluators were both impressed and a little disappointed by what was seen in the Kisumu classrooms. However, what was unreservedly impressive was the way in which this project has come to serve the needs of the community and the way in which it has striven to develop generalisable models of practice. We were left in little doubt that the work taking place was warmly welcomed and indeed financially supported by the Municipal authorities and the parents, despite their limited resources. It was clear that the project had developed an enthusiasm in many schools even before they became formally involved in the training process. Furthermore, by developing ways of working collegially with teachers in their own classrooms, the project has pioneered a method of staff training which has potential well beyond Kisumu and indeed beyond school improvement in the Developing World.

Perhaps we should not be surprised by this balance sheet. We noted that the original proposal was strong in proposing a mechanism for disseminating good practice but weak in clarifying what that good practice might be. The teaching strategies being disseminated by the project are an improvement on the situation described in the pre-project analysis and there can be little doubt that they are being implemented in conditions which are often quite daunting. Our concern as evaluators is to underline that even more might be achieved in the future if the project team in particular given the opportunity to refresh their thinking, explore models of good practice elsewhere at first hand and develop systems systematically to question what they are managing to achieve.

3.7.2 The need for continued external support

It is clear that this project has the potential to continue to add value to primary education in Kisumu. It has not yet achieved its stated intention of bringing about substantive changes in all primary schools in the Municipality. For resource reasons it has come to concentrate its efforts on Standards 1-3 despite the original intention of also including Standard 4. While the gist of our summary above suggests that there may be scope for improvement, we can find nothing from our study which would not support the project being extended to a five year lifespan as was intended in the original proposal. There are also sound reasons for examining the extent of funding to explore ways in which the project could embrace the needs of teachers in Standard 4. The broader issues of ways in which it represents value for money, how a strategy for withdrawal should be built into the programme and whether indeed a lifespan beyond five years should be conceptualised will be considered in Chapter 5 below.

Bombay, India

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Jean-Luc Ray/Aga Khan Foundation

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4 Bombay Case Study

4.1 Background and description

Bombay, on the West coast of India, is one of the country's largest cities and a major commercial centre. Free education is available to all children over the age of 5, but there is relatively little preschool provision. A substantial proportion of parents opt to choose to send their children to independent or what are essentially 'grant-maintained' schools, the latter receiving the benefit of the payment of primary and secondary teachers' salaries with the fee component being used to supplement the facilities.

The Aga Khan 'Diamond Jubilee' Boy's and Girl's schools in the largely Moslem commercial centres of Mazgaon and Dongri in the heart of the city fall into this 'grant-maintained' category. As fee-paying schools they do not serve the most disadvantaged sectors of society in the city. They do however largely although not exclusively cater for the Moslem minority and tend to attract parents from the 'small-trader' background rather than from the most affluent. In 1989 there were 1386 pupils in the boys school and 729 in the girls. The combined staff of the schools was 89.

The Bombay School Improvement Programme began in June 1989, its main objective being to bring about an improvement in the quality of education in the two schools in both the pre-school and lower primary levels. The reason for the initiative was that when the schools came under the direct control of the Aga Khan Education Service (India) in 1988, it commissioned an evaluation of the quality of education being offered. This evaluation identified several weaknesses including:-

- Poor quality didactic teaching which reflected a limited understanding of children's needs
- Limitations on the English language skills of the teachers which was a serious problem in an English medium school
- Children with learning problems which were attributed to an unstimulating learning environment and their poor command of English
- A rigid curriculum which lacked the opportunity for creativity
- Poor relationships between teachers and school managers
- Limited involvement with parents and the community

A proposal was therefore prepared to institute a programme which would resolve these problems. The proposal was drafted by a team including the writer of the evaluation report who subsequently became project director. Funding of £125,876 to cover the period September 1989 to December 1991 was negotiated, 40% to be met by AKES (India) and the Diamond Jubilee Trust, 30% by AKF (UK) and 30% by ODA.

4.2 Project Design

There was an element of repetition in the project proposal where the objectives were outlined, but they can be synthesised as follows. The Project aimed to :

(i) Work from the grass-roots level in the schools through the management to identify and clarify goals, and build structures which are 'owned' by the organisation. It was hoped that this would lead to a new and more purposeful environment in the schools which would help staff better to understand their respective roles.

(ii) Improve teachers' knowledge of their subject, their English and their knowledge of teaching methods.

(iii) Find concrete and immediate ways of addressing the problem of children's learning difficulties. It was hoped that this would reduce the drop out rate amongst these children.

(iv) Improve community contacts in order to enlist the understanding, support and interest of the community in the progress of the schools. In particular it was hoped that greater support from parents would encourage children's motivation to learn

It was visualised that the project would benefit a range of parties. Children would benefit from a more holistic education and through obtaining remedial attention when they needed it. Teachers would have their professional skills upgraded, administrative and ancillary staff would be able to provide a more efficient service and principals would be able to develop their administrative and inter-personal skills. It was also hoped that volunteer managers would develop a deeper understanding of their role and function and the contribution they can make to the school.

It was envisaged that the project would focus on five components. These would comprise institutional development, staff development, curriculum redesign, remedial teaching and community contact.

The Institutional development component was expected to lead to clarification of the roles of staff and management; the preparation of action plans and performance indices; monitoring of changes and individual output; and the introduction of a reward system acceptable to staff. Meanwhile, improvements to the physical infrastructure and renovation of building were to be undertaken in the two schools by AKES(I).

A programme of staff development was seen as the central component which would continue throughout the project. This was to include the training of teachers, principals and support staff. It was also intended to improve the staff salary structure in order to remove disparities.

The curriculum redesign component had several aims. These included upgrading of language skills, particularly English; the development of thinking, reasoning and creativity; nurturing a responsiveness to children's development needs; the development of competency in preparing for public examinations; and attention to cost effectiveness and replicability.

It was also stated that the curriculum should be flexible enough to deal with three levels of ability - slow learners, average performers and the outstanding.

It was proposed that the programme for remedial teaching would initially be conducted by specialists. Appropriate materials would be prepared and teachers would be helped to identify children with learning difficulties. At a later stage, teachers would be trained to deal with such children within the class itself.

The main purpose of the community contact component was to establish closer relationships and to enlist understanding, support and positive interest in the progress of the schools. Children would be involved in community projects such as campaigns as part of this component.

4.3 The process of implementation

We found it easy to track the history of this project from the initial design phase, through implementation to its current state because of the detailed quarterly reports submitted by the project director. It is this documentary evidence along with the views of participants gathered through interview and questionnaire which are the basis of our comments in this section.

One of the early shifts in emphasis in the project objectives was the rearrangement and expansion of the five components described above. Throughout the series of quarterly reports, seven and not five components were described. This resulted from the 'staff development' component being split into 'growth in self-awareness for the teachers' and 'professional up-grading of teachers in subject content and teaching methodology'. In our description of implementation we have stuck to the original 'staff development' category. However the other addition was a new development which is not easily subsumed within the original five. The development of positive reinforcement measures which was given the title of the 'Token Economy' was an attempt to deal with problems of discipline. We have chosen to deal with this separately in our account.

The project office was established in the D.J. Boys School. The project director, who had also been responsible for the pre-project evaluation, took up her post at the beginning of the project in April 1989. A chief consultant who had also been involved in the pre-project evaluation was also appointed at this time. The design envisaged his substantial involvement throughout the project. This was true of the first two years but the evidence would suggest that his contribution diminished in the final year leaving a gap in the external stimulus which characterised progress in the initial years.

The project has also drawn technical and academic inputs from consultants and resource persons engaged for specific tasks.

In the second year of implementation a full time project assistant was appointed and in 1992 a full time education officer was added to the team.

In the initial stages the project was supervised by both a Project Management Committee and a School Management Committee. However experience led to the two Committees being merged into one - the School Management Committee.

Although the long-term aim of the project is to bring about changes throughout the schools from the pre-primary to the secondary, the three funded years to date have focused on the preschool and the primary classes. The first year focused on reforming the preschool section, consisting of nursery, lower kindergarten and higher kindergarten and Grades I and II in the primary section. This was gradually extended to cover Grades III and IV as well. Thus at the time of the present evaluation, all classes in the preschool and primary sections have been influenced and children who are currently in Grades II and III have been involved for all or most of their school experience.

4.3.1 Institutional Development

Institutional development has been one of the major thrusts of the project throughout. Amongst its most important features have been changes to the School Management Committee, clarification of the roles and responsibilities of members of staff at all levels, reconsideration of the salary structure and the development of a reward system, improvements in the physical infrastructure and the appointment of additional teachers. Less progress has been made in the preparation of action plans and performance indices and in developing procedures to monitor changes and individual output which were identified as important in the proposal

The School Management Committee has become more broad-based and now includes teacher representatives. This appears to have reduced the distance between the Committee and the staff. Teacher representatives now hold meetings with their colleagues prior to School Management Committee meetings and gather their opinions on major issues.

Guidelines have been drawn up to clarify the roles and responsibilities of staff. Section heads report that they now feel that they have been given more individual responsibility. Teachers reported that they enjoy greater freedom in their work which has encouraged experimentation and improvement in classroom teaching. There was also a feeling amongst staff that differences of opinion are now more likely to be reconciled through meetings and consultations which was again seen as engendering a feeling of ownership.

There is an interesting contrast in the extent to which the project has been successful in dealing with the question of remuneration. The exercise to streamline the salary structure involved staff and seems to have been successful. However, the schools' attempt to introduce a merit award system has been less straightforward. The first design came from senior staff, but when an attempt was made to make payments to staff, the result was a public embarrassment when teachers refused to accept them. The growing strength of delegated responsibility was however reflected in the solution. Rather than continue the confrontation it was decided to delegate responsibility for the development of an alternative and more acceptable design to the staff themselves. At the time of the evaluation work was continuing, but the difficulties of drawing up acceptable performance measures have now at least been widely shared amongst all concerned.

4.3.2 Curriculum redesign

The traditional Indian classroom is dominated by the use of textbooks to cover a clearly prescribed curriculum with little scope for manoeuvre for either teacher or pupil. To question this approach to the extent of rewriting the curriculum and replacing traditional textbooks by materials developed be the project itself can therefore be seen to be a major change.

Redesign of the preschool curriculum began in the first year of the project. The main impetus came from the principal consultant and about half of the staff chose to be involved. New learning materials were prepared and teachers were introduced to the principles and the practice of child-centred learning. Reading and writing was substantially reduced for preschool classes and the focus was shifted towards the development of personality and thinking skills. In 1990 after a study visit by the consultant to the High Scope Institute in the United States, even more emphasis was placed on activity based and play centred methods.

Teachers were also actively involved in curriculum redesign and the development of materials for Standards I and II. A teaching manual entitled "Teaching Tips" was prepared. This outlines the revised curricular frame and has proved a useful resource to help in the induction of teachers new to the school.

Revisions of the curriculum for Standards III and IV were introduced in session 1991-92. In this case revision has been largely the responsibility of the teachers themselves with little external support. However, no parallel to 'Teaching Tips' has been produced and the evaluator's scrutiny suggested that it was still in a rather skeletal and unstructured form. The shift in responsibility to the teachers can only be a positive reflection on the project, but the absence of the systematic procedures for review which were envisaged in the proposal including "a specialist working group involving AKES teachers and visiting specialists .... to plan, modify, implement, monitor and review the curricular redesign programme." suggest the need for caution in assuming that there is not still work to be done. Indeed given the major emphasis placed on curriculum redesign and the substantial innovation which has taken place, the perusal of more effective monitoring systems would seem to be a priority.

One aspect of the innovatory design which might be worthy of inspection by such a review group might be the policy relating to textbooks. The design envisaged a move away from traditional textbooks towards curriculum materials developed by the teachers themselves. This would not be considered an unwise development in, for example, a British context. But much of the advantage of such a move is predicated on the assumption of a rich resource of alternatives for pupils both in the school and in the home. According to our interviews with teachers and our classroom observations, this cannot be assumed to be the case in these schools. Furthermore, several teachers complained that they had access to only a limited range of materials which they themselves could use to stimulate their own thinking. Several were of the opinion that in some cases the project was in danger of moving from traditional textbook materials to no materials at all. They were of the opinion that traditional textbooks could have a place in the school and need not run counter to a move towards a child-centred approach to learning. Furthermore, many parents expressed concern about the lack of textbooks. They found it more difficult to keep track of their children's progress and were concerned about how their children would cope at a later stage of their education when they would have to learn in more traditional environments.

We can see no imperative for a return to a traditional textbook-based learning in these arguments but they do indicate sufficient disquiet to suggest the need for clarity of policy and a review of practice.

4.3.3 Staff Development and Training

The proposal indicated that training would focus on the needs of teachers, principals, support and management staff, but although some support staff have been trained in the use of audio-visual aids and senior staff have been involved in several courses for teachers, the main recipients by far have been teachers.

Quite why particular emphasis came to be placed on the distinction between programmes oriented towards 'growth in self-awareness for teachers' and those designed for the 'professional upgrading of teachers in content and methodology' is not clear. The former would appear to fit less easily into the original objectives in the proposal. In fact as the project has progressed, less emphasis has been placed on external inputs from outside experts, although teachers were keen to emphasise that provided these have a sound knowledge of the project's goals, they could have a useful role to play.

The move towards school staff developing the expertise to sustain staff development is an interesting feature of this project. Once again, however, monitoring of its efficacy would seem to be essential and we were not aware of the form this was intended to take. Amongst the questions which might be asked is what the 'trainers' and 'trainees' see as their respective functions, the way in which topics for training are determined, and the capacity of an internally driven development programme to sustain the spirit of enquiry which characterised the early stages of the project.

Finally it is worth noting that although the project has only been in existence for three years, problems are already beginning to materialise as a consequence of teacher turnover. Very few teachers in these schools are those who were in position when the project began and at the time of the evaluation, 40% of the teachers in one of the primary schools had only joined the staff in the preceding few months. This is partly a consequence of teachers only being retained if they meet what the school sees as its high standards and also the project director's view that the renewal of staff with fresh thinking is a positive asset. The opposite view is that every loss of a trained teacher is a lost asset. Whatever the truth of the matter, there is obviously need for a substantial induction programme to allow new staff to assimilate the principles of the project; there is also a clear need for well documented accounts of the curriculum design and how to use the teaching materials, both resources which we have already indicated have only been prepared for Standards I and II.

4.3.4 Remedial teaching

The Project proposal identified remedial teaching as a priority but gave little detail as to how it would be tackled. It was, however, suggested that the remedial programme would initially be conducted by specialists and to implement this, clinical psychologists were appointed in each school to establish Child Care Units. The first appointees left after one year and were replaced by secondary trained teachers with B.Ed. qualifications. These again did not stay and at the present time a psychologist with no experience of remedial work or of primary teaching is in post in one school and a new appointment has recently been made to the other.

These changes in staff reflect a lack of certainty about the role and purpose of the remedial programme. Its main function appears to have been to provide supplementary teaching in English for weak students, but the qualifications of those appointed point to different priorities. In interview, most class teachers were unsure about what the Units offered and there seemed to be no standard procedure for referral. Furthermore, although one school has a social worker in post, there was no evidence of coordination between her and the person in the Child Care Unit. The evidence suggests that more thought needs to be given to how this resource should be used and how it should be integrated into the work of the schools.

4.3.5 The 'Token Economy'

The pre-project evaluation pointed out the poor state of student discipline, particularly in the boys school. An early initiative of the project was to devise a system to combat this. Based on the principle of positive reinforcement of acceptable behaviour rather than sanction against poor behaviour, the 'token economy' required teachers to award 'tokens' to pupils who exhibited good behaviour. These tokens could be used by pupils to upgrade test results.

By the time this evaluation was being conducted, the 'Token Economy' initiative was in abeyance. Teachers had found it too complex and mechanistic. There is some evidence from our interview data that teachers felt that it had had a positive influence on discipline but others still considered this to be a problem, particularly in the boy's school. The notion of focusing teachers' attention on what constitutes 'indiscipline' rather than focusing on improved discipline is forward looking and it is unfortunate that the system appears to have proved over-cumbersome in practice.

4.3.6 Community contact

The proposal implied that the community contact component would include initiatives to improve relationships between parents and the schools as well as greater use of the community as a resource.

The experience of the evaluation would suggest substantial interest in the schools amongst parents. Their enthusiastic involvement in meetings with the evaluators, their responses to the questionnaires and teachers' accounts of their involvement in parent-teacher meetings all suggest substantial commitment. The extent to which this was attributable to the project is less clear.

There was not as much evidence of the use of the community as a resource. Several 'high profile' activities such as involvement in a World Congress on AIDS as well as boys participation in a drug abuse programme and girls taking part in a rural awareness trip were drawn to our attention. However, the extent to which community involvement has truly become an integral part of the curricular programme is probably still open to question.

4.4 Impact in the classroom

The impact of the project on what actually happened in the classroom was explored in Bombay by intensive study of teaching and learning in one preschool and three Grade II primary classes in both the Boy's and the Girl's schools as well as in two Grade II primary classes in the comparable non-project school. The latter was deemed comparable because it was also a fee-paying school of similar background and clientele with a preschool and teaching through English.

The focus, as in the Kisumu case study described above, was on the classroom environment, teaching methods, the 'content' of the curriculum, pupil learning and pupil attainment. The instruments used were the same as those used in the Kisumu study, adapted where necessary to suit the particular needs of the Bombay project.

4.4.1 Classroom environment

There were approximately 45 pupils in each of the preschool classes, but by making an extra teacher available in each class, the project had improved the pupil-teacher ratio considerably. Primary classes were of between 45 and 55 pupils both in the Diamond Jubilee schools and in the comparable school.

Classrooms in the preschool were organised into learning areas such the 'home area' and the 'reading area'. At the beginning of the day, the children had freedom to choose the area in which they wanted to 'play' for 35 minutes. Following this they were encouraged to describe what they were doing in English, a considerable challenge for many who, at the age of 4 or 5, did not encounter English in the home. In the Boy's school which had a little more space than in the Girl's school, the classroom layout for the Standard I and one of the Standard II classes also allowed for group work, but in the remaining classes in the Boy's school and in all the primary classes in the Girl's school, seating was at long benches with the children packed into a tight space leaving little opportunity for movement or for innovative classroom usage. One primary classroom in the Girl's school did provide more flexible arrangements and was used on a rotational basis by different classes. Some extraction for specialist subjects, notably Maths allowed for smaller teaching groups but this was the exception rather than the rule.

As we have already indicated, school policy was not to use textbooks. There did however seem to be a reasonable supply of teaching materials, and most classrooms had a small library of reference material. There was a library in each school and an audio-visual room to which classes had access by arrangement. The walls of most rooms were however surprisingly bare suggesting little use of this for the display of children's work or its use as a learning resource.

4.4.2 Teaching methods

Classroom observation in both of the project schools and in the comparable school using the same instruments as were used in the Kisumu study was the main source of data on teaching methods. Table 4.1 shows the percentage of lesson time in ten classrooms which was devoted to five categories of teacher activity.

Table 4.1 *Percentage of lesson time dominated by teacher-led activities*

School		**Boys' pre-school**	**Girls' pre-school**	**Boys' primary**			**Girls' primary**			**Non-project primary**	
School Teacher		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Activity											
Teacher talk related to lesson content	whole class	10*	17	36	25	26	9	4	6	27	42
	small group	42	37	12	1	0	0	0	1	0	0
	individual pupils	15	7	1	37	21	0	29	14	0	9
Classroom Management	whole class	6	10	28	25	1	5	15	40	25	12
	small group	0	0	1	1	0	5	0	15	0	0
	individual pupils	6	7	0	0	4	0	8	12	0	0
Teacher-initiated questioning	whole class	2	3	22	19	12	11	11	27	35	21
	small group	38	37	0	0	0	14	0	0	0	0
	individual pupils	3	0	0	0	12	32	0	12	6	0
Non-lesson related management	whole class	0	0	0	1	0	0	0	2	0	5
	small group	0	0	0	0	3	0	1	0	0	0
	individual pupils	0	0	0	1	0	0	0	1	0	0
Discipline	whole class	0	0	9	14	14	0	5	20	37	8
	small group	0	0	0	0	0	0	0	0	0	0
	individual pupils	0	0	7	3	5	0	14	15	10	11

*The figures shown indicate the percentage of the teaching day during which an activity took place. The categories are not mutually exclusive.

There were interesting similarities and differences between year groups and schools, not all of which can be explained by their involvement in the project. The predominant category in the Boy's primary classrooms was 'teacher talk' although this included a mixture of attention to the whole class and to groups or individuals. In the Girl's school the picture was different with one teacher using less than 10% of learning time in this mode and the two others directing talk to individuals rather than to the whole class. In the preschool classes the predominant mode was, perhaps surprisingly, 'teacher talk' although this was dominated by talk to groups. Teacher talk was dominant (although not predominant) for one teacher and by far the most dominant for the other, but the most notable difference between this and the project schools is that in the comparable school, the focus was largely on the whole class.

Classroom management took up a considerable amount of time for two teachers in each of the project schools and very little time for the third in each. It was not a demanding use of time in the preschool classes and again in the comparable school, there was a considerable difference between the teachers. Classroom management was the category used for time taken up by the teacher in organising the 'mechanics' of the classroom rather than 'teaching'. These findings do not suggest that the teaching approaches used in the project have been particularly effective in reducing the time devoted to this, but neither do they suggest that they are more demanding of management time.

Teacher initiated questioning, especially directed at the whole class, is an activity which would in theory be diminished in a move towards child-centred learning. The most notably different group of teachers in this case were from the preschool where almost all teacher-initiated questions were directed towards groups although of course this is less surprising given the team teaching strategy used in the classrooms. However, the difference between primary project and comparable classes related to individual teachers rather than a school pattern, again suggesting that individual teacher differences may explain as much about how teaching is conducted as does involvement in the project. The same observation would apply to the amount of time taken up by 'discipline-related activities' which was negligible in some cases but dominant in others, with differences between schools being far less noticeable than differences between classes.

Overall, therefore, the only apparent difference in teaching style which is easily related to the effects of the project would appear to be a greater emphasis on groups or individuals. Differences amongst individual teachers were however more noticeable.

4.4.3 Learning

As in the Kisumu case study, we not only wanted to know whether teachers' styles had changed, but also whether pupils were learning in a more child-centred manner. We wanted to know the extent to which learning tasks were differentiated to meet the needs of individuals or groups, the extent to which pupils interacted with each other and whether there was any evidence of greater pupil-initiated discussion with their teachers. The results of our observing children's learning in the case study classrooms are shown in Table 4.2 below.

Table 4.2 Percentage of lesson time featuring various pupil learning activities

School		Boys' pre-school	Girls' pre-school	Boys' primary			Girls' primary			Non-project primary	
School Teacher		1	2	3	4	5	6	7	8	9	10
Activity											
All pupils working on same task	D	10*	17	14	67	86	68	60	54	100	65
	P	0	0	12	8	4	0	0	9	0	15
Active group work	D	47	33	10	0	0	21	0	0	0	0
	P	17	0	2	0	0	0	0	0	0	0
Group work-pupils not involved	D	0	0	0	4	0	0	0	0	0	0
	P	3	0	3	7	0	0	0	0	0	0
Individual tasks	D	20	0	0	0	0	0	36	11	0	0
	P	10	20	0	0	0	0	0	2	0	0
Interactive pupil discussion	D	33	20	0	0	0	11	0	0	0	0
	P	0	0	0	9	7	11	26	1	0	0
Pupil response to teacher-initiated questions	D	44	40	11	17	0	7	0	2	35	10
	P	0	0	19	3	0	13	0	0	0	0
Pupil-initiated discussions	D	13	0	0	0	0	0	0	0	0	0
	P	33	0	0	7	0	18	0	0	0	0
Pupil demonstration	D	0	0	0	0	0	14	0	0	0	0
	P	17	0	2	2	30	4	43	32	0	0
'Off-task' activities	D	0	3	44	18	3	0	0	19	0	12
	P	33	47	26	18	38	14	35	31	35	1

*The figures shown indicate the percentage of the learning day during which an activity was dominant or present. The categories are not mutually exclusive.

D = dominant activity; P = activity 'present' but not dominant.

Learning in the two pre-school classes can be characterised as a stimulating mixture of varied activities. Group work, individualised work, pupil interaction, pupil-initiated questioning and pupil demonstration or all part of the repertoire. The whole class working on the same task, and pupils responding to teacher-initiated questions are included in the range of activities, but the former in particular is not dominant and the latter tended to be questions to groups or individuals rather than to the whole class. In short, the profile of pupil activity in the preschool classes of both schools would suggest that the predominant teaching philosophy is child-centred.

The profile of pupil activity in the 'comparable' primary school classes suggests the opposite. The appearance of all pupils working on the same task with 'off-task activities' and 'pupils responding to teacher-initiated questions as the only other recorded categories strongly suggests a teacher-centred didactic approach with no differentiation according to individual or group need.

What of the 'project' primary classrooms? Here the picture varies amongst teachers and between schools. We saw no instances of pupils working on individualised tasks in the three days of observation in the Boy's school. We saw pupils working meaningfully in groups in one classroom, pupils 'working' in groups where most were uninvolved in another, and no group work at all in the third. In fact the only activities which differentiated teacher 3 in the Boy's school from those in the 'comparable' school was a trace of interactive discussion and active learning - hardly a profile of child-centred learning.

There was a greater emphasis on differentiating learning tasks to meet the needs of individuals or working in groups in the Girl's school but they came out as alternatives. The absence of group work can probably be explained at least in part in this case by the seating arrangements which makes working in groups extremely difficult. Interactive discussion and active learning were present in some of the classes and there was a trace of pupil-initiated questioning in one. But the dominant category in all but one of the primary classes in both schools was pupils working on the same task.

Interestingly, discussions with individual teachers and groups of teachers about their views of the project suggested in some cases a considerable sophistication of understanding about the basic principles lying behind the initiative. The reasons given for progress being limited were often pragmatic rather than profound. The implication seemed to be that progress in the direction of child-centred learning was desirable but in many cases impracticable because of limitations of space and resources. Given the progress made in some classrooms in Kisumu with a substantially inferior pupil-teacher ratio, some of this must be held in question. But while we were conscious that some new members of staff were struggling to orientate themselves to the arguments, our impression of the Bombay project was that the teachers knew what they were doing, and if they were not always conforming to the child-centred paradigm, they knew why.

4.4.4 Content

We have already shown that curriculum renewal was a major thrust of the project and we have traced the success of the project in this area from preschool, through Standard I and II and now onto Standards III and IV. But what of its effects in the classroom? In changing the formal curriculum to one which would more closely meet the needs of the school and which would nurture the teaching of English, did the project also succeed in laying greater emphasis on the personal skills and competences which characterise child-centred learning. Once again we used an observation profile of higher order competences such as problem-solving and thinking skills, and broader competences such as leadership skills, group skills and personal initiative for each lesson. Our finding are shown in Table 4.3

Table 4.3 The range of competences pupils had the opportunity to develop

	Boys' primary			Girls' primary			Non-project primary	
School	3	4	5	6	7	8	9	10
Competence								
Working with others	Y	Y	N	N	Y	Y	N	N
Working cooperatively in groups	Y	Y	N	N	Y	N	N	N
Solving problems	Y	Y	Y	Y	Y	Y	N	N
Acting with confidence	Y	Y	Y	Y	Y	Y	Y	N
Leadership skills	Y	Y	N	N	Y	N	N	N
Initiative	Y	N	Y	Y	Y	Y	N	N
Creativity	N	N	Y	N	Y	Y	N	N
Practical skills	N	N	Y	N	Y	Y	N	N
Interacting with teacher	Y	Y	Y	Y	Y	Y	N	N
Expressing opinions confidently	Y	Y	Y	N	Y	Y	N	N
Thinking for oneself	Y	Y	Y	Y	Y	Y	N	N

Y = opportunities present
N = opportunities not present

Almost all of the teachers in the project schools gave pupils the opportunity to develop problem solving, self-confidence, taking initiative, interacting with the teacher, expressing opinions and thinking for themselves. In contrast, half of the teachers did not offer the opportunity to develop leadership skills, act creatively or develop practical skills in their classrooms, at least on the days on which we observed them.

A more striking contrast was with teachers in the non-project school. Although children were occasionally seen to be thinking for themselves and developing practical skills in these classrooms, these were felt by the observer to be incidental and not part of the deliberate policy of the teacher. In short, the evidence would suggest that one clear influence of the project has been to broaden the range of competences which children are given the opportunity to develop in the classroom.

4.4.5 Pupil attainment

Given the importance attached to child-centred learning in the project, the same group estimate measures of non-cognitive competences as were used in the Kisumu case study were used in Bombay. Again, the evaluator estimated the proportion of pupils who, when given the opportunity to use one of these competences, appeared to cope as well as might have been expected for a child of that age.

The findings shown in Table 4.4 are interesting in several respects but unfortunately do not offer much insight into project effects. This is quite simply because, as was shown above, pupils in the non-project school had very few opportunities to develop these skills in their classrooms and so in turn there were few opportunities to judge their competence.

Table 4.4 *The extent of pupil competence in non-cognitive skills*

School	**Boys' pre-school**	**Girls' pre-school**	**Boys' primary**	**Girls' primary**	**non-project primary**
Competence					
Working with others	Some	Some	na	Most	Most
Working cooperatively in groups	Some	na	na	Most	Most
Solving problems	Some	Some	na	Some	na
Acting with confidence	Some	Most	Some	Some	Some
Leadership skills	None	na	na	na	na
Initiative	Most	Some	na	Some	Some
Creativity	na	Some	na	Most	Some
Practical skills	na	Some	Some	na	Some
Interacting with teacher	Most	Most	na	Most	Most
Expressing opinions confidently	Some	Most	na	Some	Some
Thinking for oneself	Some	Most	Some	Some	Some

na = insufficient evidence to draw a conclusion.

What is interesting are the differences between the project schools and sections. There was a tendency for girls to be more self-confident, more able to express their opinions and more able to think for themselves in the primary classrooms. Unfortunately there is insufficient data to indicate whether this suggests a fundamental gender difference with this age group or whether the difference has its origins in the different ways in which the classes are taught.

Another interesting difference is between the preschool data and the primary data. This suggests that the younger children are more likely to appear competent in working together and in groups but less likely to be able to express opinions freely or think for themselves. Again only tentative hypotheses are possible given the small amount of data. However, while the latter finding seems reasonable, the former is more puzzling not least because almost all pupils in the primary classes had gone through the preschool during the life of the project and had presumably developed cooperative skills at that time. The question which these data cannot satisfactorily answer is whether the apparent fall-off in cooperation is an inevitable function of children maturing or a reflection of the different ways in which they are taught in preschool and primary classrooms. This would be an interesting issue for the project to pursue in the future.

As in Kisumu we were interested to know whether the project was influencing the attainment of basic skills in language and mathematics. To explore this tests in basic English and mathematics skills were constructed and applied to pupils in Standard III classes in both the project schools and in the comparable school. The findings are shown in Table 4.5.

Table 4.5 *Percentage of pupils displaying competence in mathematics and English skills*

School	Boys' school	Girls' school	Non-project school
Mathematics			
Counting	97*	95	96
Number recognition	97	79	97
Writing numbers in words	76	81	93
Arranging ascending numbers	63	53	91
Arranging descending numbers	66	33	84
Addition without carrying	86	93	94
Addition with carrying	64	79	90
Subtracting without borrowing	68	79	72
Problem-solving involving addition	89	84	94
Problem-solving involving subtraction	31	22	54
Understanding currency	72	36	58
English			
Word recognition	86	92	91
Comprehension	66	42	62
Word formation	91	79	76
Spelling	13	8	21
Constructing sentences	19	34	23

*The figures shown indicate the percentage of Standard III pupils who answered questions areas correctly.

It is only in three areas of mathematics that fewer children from the non-project school were less competent than those in the Boy's school and of these, it was only in solving problems related to currency that this difference was statistically significant. Overall, pupils in the Girl's school did less well than in the Boy's school and there was only one competence in which they did better than pupils in the comparable school. Clearly, not having information about achievement levels in these schools prior to the project we cannot comment directly on the extent to which mathematics learning has improved. However, using the cruder comparison with the comparable school the general picture seems to be that attainment in the Boy's school is roughly similar but mathematics attainment in the Girl's school is not as good.

The differences in English are not as clear cut. Most pupils in all of the schools were able to cope with simple word recognition and writing words. About two-thirds were able to read simple sentences although those in the Girl's school did significantly less well. Spelling was poor in all three schools as was sentence construction although pupils in the Girl's school did significantly better in this than did the others. The conclusion must be that there is no significant difference in overall attainment in English amongst pupils in these schools.

4.5 Broader impact

Changes to classroom processes and to the actual attainments of pupils were important to this project but as has already been shown, this was to be achieved at least in part by institutional renewal, by the professional development of teachers and by greater use of the community as a resource. We therefore explored these broader impacts by using interviews and questionnaires to gather the views of teachers, project staff, parents and others who had been involved in the project.

4.5.1 On teachers

Both the interviews we conducted with the teachers and the responses they gave in their questionnaires, suggested that in general terms almost all of them were positively disposed to the project. At the same time it was a positive reflection of their professionalism that they were also insightful in their critiques of what they were trying to achieve.

The general response to adopting more child-centred approaches was positive, but the enthusiasm of primary teachers in particular was tempered by a feeling that the approach was generating a substantial additional workload of preparation and activity in the classroom. A quarter of the primary teachers and more than half of the preschool teachers took a more positive attitude, claiming that while preparation work had become more time-consuming, teaching had become easier.

Their views on the impact of the child-centred approach on the pace of learning were interesting. Only a quarter of them felt that the pace had slowed, and slightly fewer felt that it had been unaffected. The most common opinion was that although learning had been slowed down initially, this was not a problem because children were learning better and in the long term achieved at least as much. We have already shown that, perhaps with the exception of mathematics in the Girl's school, there was no evidence of attainment in basic skills being adversely affected. If it is the case that the child-centred approach sustained over several years yields benefits in the development of non-cognitive skills and is at least as effective in achieving the more traditional objectives of the curriculum, this will be an important finding for the project.

Of more concern, however, must be the teachers' views on the appropriateness of the revised curriculum. Although there was a good measure of support from the preschool teachers, the primary teachers were less sanguine. Three quarters of them were only partially convinced of the appropriateness of the changes. Given our findings on the question of learning materials and in particular the project's policy on textbooks, there would seem to be some need for review of policy in this area.

It is important to underline the fact that despite these criticisms, the general view of the teachers was positive. A good measure of this was their response to a question on whether the approaches developed by the project could be sustained once funding had ceased. This invites the type of question which is often a negative response from participants. In this case, however, only 10% of respondents took this view. More than half of the primary teachers and 40% of preschool teachers felt that they could maintain most of the project's activities and the remainder expected to be able to keep some of the changes.

4.5.2 On schools

We have already shown that the project has tried to improve the physical facilities in the two schools and has focused attention on institutional development through the revision of structures and changes in management style. The question addressed here is what impacts these appear to have had on the schools.

The physical changes brought about by the project have been limited. By Western standards the overcrowding of the classrooms would be unacceptable, but in the Indian context the space available is not untypical and the secure, generally sound buildings are probably better than most. One suspects that a tradition of bench-type seating which rigidly supports didactic teaching and leaves little scope for the creative use of classroom space would be difficult to circumvent without a substantial investment in more flexible classroom furniture. The extent to which this is a fundamental impediment to change in the primary classrooms cannot be answered from these data, but one suspects that, for example, there would have been more evidence of groupwork with different classroom furniture. This suggests that a careful analysis of the costs and the benefits of investing in this area might be appropriate.

A surprising finding was that relatively little emphasis was being placed on improving the appearance of classrooms and using available wall space creatively, particularly in the primary classrooms. This may again reflect the physical difficulties of movement in the overcrowded classrooms. However, the creative use of wall space as a learning resource has potential benefits which may not be being used to full advantage at the present time.

In addition to incurring costs related to improving the physical facilities in the schools, the project has also attracted extra costs through the appointment of additional teachers to improve the pupil-teacher ratio in preschool classes. We will return to some of the implications of this below, but it is interesting to note that this additional resource was seen as central to the success of the project with these classes. There was evidence of pressure from staff to extend this policy through to the primary school but it was equally clear that the school managers were reluctant to move in that direction because of the implications it would have for fees.

It would be wrong however to characterise the main effects on the schools as being solely associated with material enhancements. Just as central has been the notion of 'institution building' in the sense of revising and improving the ways in which staff relate to each other. The pre-project analysis claimed that the school climate was characterised by an element of mistrust between teachers and school managers and that there was a lack of commitment from at least some teachers. The question for this evaluation is whether the situation has changed?

Lacking objective measurements of these matters prior to the project it is impossible to be unequivocal about this. However, the evidence clearly suggests that, at least in the view of many teachers, matters have improved. Observation of meetings between teachers and project managers suggested that teachers are able to engage in the debate without inhibition and without apparent concern for hierarchical relationships. Indeed, as we have already noted above, the level of debaté amongst teachers was one of the most positive features of this project.

Teachers' responses in the questionnaire study also suggested that they felt there to have been a major shift in the style of school management. Particularly noticeable was perceived a shift by supervisors in the preschool away from supervision and towards support. The kinds of interactions between teachers and managers were also thought to have changed for the better. Teachers were least likely to claim that they had become more involved in 'management issues' but what these issues might be is less clear.

4.5.3 Relationships with the community

We have already indicated that questions have to be asked about the extent to which the project has capitalised sufficiently on the potential of the community as a resource to enhance the curriculum. However we also reported that meetings with the evaluators suggested that parents were enthusiastic about the project which would appear to be a substantial improvement on the indifference reported in the preproject study. If this is the case, it would suggest that the project has been successful at least in this more limited sense, of improving the school's relationships with the community. What is the evidence available?

A questionnaire was administered to the parents of pupils in Standard III whose children had been in the school throughout the life of the project and in many cases, prior to it. Amongst the questions asked was whether parents felt that the schools had become more effective and whether pupils learned more. In both cases the responses suggested a positive response from parents. 70% felt that the schools were now more effective, 83% thought that the schools were now more enjoyable places in which to learn and only 4% felt that no aspects of learning had improved. Perhaps the most substantial evidence of parents' positive attitudes to the project is that two-thirds of them expressed a willingness to accept an increase in fees if this were necessary to sustain the project. The demand for admission to both schools has increased substantially since the project began which again suggests that the changes are viewed positively by the community they serve.

At the same time, it has to be recognised that an externally funded project such as this may have to be evaluated in broader terms than its impact on those who are most directly involved. It is interesting for example that the proposal makes no explicit statement about the aspirations it might have for the particular educational needs of boys and girls. Perusal of this matter with project staff suggested that the education of girls was seen as requiring a particularly delicate balance. On the one hand many girls need to be given support in developing the role which they might face as society changes. Yet at the same time, others will find themselves fulfilling traditional family roles and schools are also seen as having to prepare girls to cope well in that context. The corollorary is that boys must be made aware of the potential role of women in society. If it is the case that meeting the specific needs of boys and girls is a challenge to curriculum design it could be that there is a need to deal with it more specifically than the project has done to date.

The more general question of whether the project is having an impact on the poorer sections of the community is more difficult to deal with. On the one hand, children of parents who choose to send their children to a school which charges fees when free education is available cannot be from the poorest sections of the community. On the other hand, Muslims are in a minority in India, and improvements in provision for minority groups is seen as a priority by the Indian Government. To the extent that this project provides models of practice which could be used in similar contexts elsewhere in the country it may therefore meet the criterion of having an impact on an important minority group even if they cannot be claimed to be the poorest minority.

4.6 Costs

The precise costs of the Bombay project are difficult to define because of the variety of funders and their different priorities. In particular it has proved difficult to establish which contributions by the Diamond Jubilee Trust and AKES (India) should be considered exclusively to be project costs. It does however appear that expenditure of a capital nature, apart from that on audio-visual aids, books and instructional materials, was not attributed to funds from AKF (UK) or ODA. These funds were used for small non-recurrent items in the list above and recurrent costs of materials, but much more importantly for salaries, fees and staff training. As the only capital expenditure covered by Indian funds which seems to be central to the functioning of the project relates to items such as schoolroom furniture, in this account of project costs we will focus only on the ways in which 'external' funds were used.

4.6.1 Documented costs

Table 4.6 shows the UK originating project budget for the three financial years 1989/90 to 1991/92. An indication of the project budget for these years is also given but it should be noted that the proportions of budget expenditure under each heading are not strictly accurate although the totals are correct. This is because the information given to us described proportional expenditure in terms of the overall budget rather than on an annual basis. For ease of comparison, project costs are described here in pounds Sterling.

Table 4.6 Project budget and expenditure (UK funding only)

Project budget	**1989-90**	**1990-91**	**1991-92**
	£34,088	£20,716	£20,792
Expenditure as a percentage **overall** project budget			
Project director and consultant		29%	
Teachers salaries		30%	
Staff development		17%	
Industrial materials		11%	
Audio-visual aids		9%	
Books		2%	
	1989-90	1990-91	1991-92
Approximate number of teachers influenced	37	54	54
Approximate number of pupils influenced	722	1059	1395
Cost per teacher influenced	£921	£384	£385
Cost per pupil influenced	£47	£20	£15

The unit costs of influencing individual teachers and pupils is calculated on the assumption that in year 1, only preschool staff were involved, in year 2 this was extended to Standard I and II and in year 3 came to include Standard III. This is an oversimplification of the progress of the project. It would however be equally unrealistic to assume that all teachers and pupils had been substantially influenced by the project from the outset. Teachers' continuing professional development once they had become involved is however recognised by assuming a cumulative influence because of the ongoing stimulus of the project team.

Based on these assumptions our calculations suggest that from an initial high of £921 per teacher, costs had fallen to approximately £385 per teacher by 1992. Arguably the cost per teacher *trained* are in fact some 30% lower because the total costs include the salaries of additional preschool teachers appointed to change the pupil-teacher ratio. Approximately one-fifth of these costs are attributable to direct staff training, and about the same amount to the cost of teaching materials. The remaining 30% (or approximately £100 p.a.) are incurred through salaries and fees for the project staff and the consultant.

Costs per student also fell substantially as the project progressed, reaching a low of £15 by 1991-92. Again if it is accepted that teaching throughout the school has been influenced by institutional growth, this is arguably an overestimate especially in 1991-92 when all teachers and pupils will have been influenced at least to some extent. However the figures used here reflect the cost of making a substantial impact on a pupil's curriculum and learning experience.

Costs not incurred which might reasonably have been expected include international travel and dissemination. We realise that within the 'project consultant' costs are those for travel to the United States but we were not able to identify this as an individual item in the figures provided. We know that visits to other projects have taken place but these have been fairly limited. The low dissemination costs reflect the low priority attached to this by the project but we suspect that greater attention would have to be given to this in any extension and a budget would have to be available.

4.6.2 Comparison with local costs

How sustainable might a programme budget of this order be if external funding were to be reduced or removed? This crucial question is probably best answered first in relation to the additional costs which are fundamental to the immediate educational needs of the schools, and second in relation to the costs which are incurred to stimulate institutional growth and change.

The situation in the preschool section of the schools is fairly clear cut. There have been additional costs related to teaching materials and resources but these are relatively trivial and almost certainly sustainable within the budgetary structure of the schools. However, more problematic is that the salary costs for teachers has doubled as a consequence of the project because of the decision to provide two teachers per class. While this has not resulted in a doubling of fees, it has already resulted in an increase.

One would have expected a change of this magnitude to be a substantial impediment to parents. But part of the complexity of commenting on the consequences of this for sustainability is that our interview and questionnaire data do not suggest that parents are antagonistic to these changes and indeed the problem for the schools is that they cannot meet the demand for places.

The situation in the primary section is different. Having already incurred the costs of specialist facilities such as an audio-visual aids room and a mathematics room, the on-going additional costs for materials are again well within the capacity of these schools to accommodate. There is pressure from teachers to improve the pupil-teacher ratio but this has been resisted by school managers and as our findings show, changes have taken place without this facility. There must be additional costs related to staff involvement in curriculum development and professional self-development but these are not of the same order as has been incurred in the preschools. In short, the on-going costs of this project do seem to be sustainable within the context in which these schools operate.

It has to be recognised, however, that the model developed for these schools, particularly in the preschool sections, may only have limited generalisability because of cost. National estimates for expenditure on education in India suggest that the annual cost of educating a pupil is in the order of £10 per child and more than 90% of expenditure is on teachers' salaries. Parental fees for attendance at the Diamond Jubilee schools are in the order of £33 p.a. in the preschools and £27 p.a. in the primary years, the difference being attributable to the contribution made by the Bombay Municipal Corporation for education in the compulsory primary years. Clearly a doubling of staff costs in Municipal schools would be a substantial and probably impossible policy decision.

However, to make matters more complicated, it has to be recognised that within Bombay there is a range of fee paying schools, some charging as much as £60 p.a. There is therefore an important question for the Diamond Jubilee schools in relation to the community they serve. Is it possible that by gradually increasing their costs they will shift the profile of the families they serve towards the more affluent? The problem is that provided they maintain and indeed improve the quality of education they offer, there will apparently be no problem filling their classrooms. But careful analysis of the consequences would seem to be a priority for AKES if their policy is to serve the needs of particular sections of the community.

Setting aside initial capital investments and the on-going costs discussed above, the main costs incurred in stimulating institutional growth and change have been those associated with project staff, consultancy and staff training. As shown above, we have estimated this to be running at approximately £10,000 p.a., the finance coming from the external UK budget.

In British terms, this is clearly a modest cost for what has been a substantial programme of renewal, but in Indian terms it represents approximately 10% of the budget of the schools. We suspect that this is not an unreasonable cost for the amount of change which has taken place and it is doubtful if changes of this order could have been achieved without a project director as a catalyst. However the evidence suggests that there is continuing need for support of this kind if the improvements so far achieved are to be sustained. In the longer term, however, questions will have to be asked about the respective roles of the project director and the two school principals. It may be that a weakness of the design so far has been a certain marginalisation of the principals' roles. We suspect that not only cost savings but also greater institutional growth could be achieved by focusing greater attention on their potential to bring about change and that this should be a priority for any extension to the project.

4.7 Conclusions

4.7.1 Has the Project been a success?

In the description above we have used the substantial range of evidence available to us to comment on the relative success of the various parts of the School Improvement Project in Bombay. We have shown that many aspects of the programme have been accomplished while there is still scope for improvement in others.

In particular, we noted that the project appears to have brought about substantial changes in the institutional health of the two schools not least because it has succeeded in improving relationships within the staff and in enhancing motivation because of the active involvement of so many teachers in curriculum and methodological development. We were impressed by the depth of understanding of what they were attempting to achieve which was shown by many teachers and also by their willingness to look critically at what they were doing.

It was very clear that the project was supporting a strongly child-centred approach to teaching in the preschool classes and although the decision to substantially improve the pupil-teacher ratio with these groups is probably only generalisable to similar well-resourced schools, it seems to have been achieved with the support of the parents who have to pay for it. In the primary sections, the evidence was that, certainly in the Boy's school, the project has not resulted in attainment in basic skills in mathematics and language being any worse than in at least one comparable school. There is some doubt about the situation relating to mathematics attainment in the Girl's school although even in this case, the difference is not substantial and there is no evidence that even that difference is attributable to changes brought about by the project. What was clear, however was that in both schools the range of competences which the children were developing was substantially greater than that observed in the comparable school.

We did however note that there were substantial differences amongst individual teachers in the way and extent to which they have adopted child-centred methods in their classrooms. We suspect that this is in part attributable to the high staff turnover which has meant that many new teachers have had to take up the philosophy of the project without the benefit of the intensive school-based development which has so benefited others. This may be a substantial problem in the future if trained staff are not retained. We suspect that there is a need for a carefully thought out induction programme for all new staff which should include active support by experienced colleagues in their own classrooms. Perhaps the 'master-teacher' concept from Kisumu offers a model which might be adapted to meet this need.

We also noted that while the notion of school-based development of the curriculum was seen as a positive development, there was need to ensure that the product was reviewed in the way initially envisaged in the project proposal. More thought also needs to be given to the nature of the curriculum materials which are available to support this. Teachers need clear guidelines about how to implement the school curriculum. They also need good materials to support their teaching. There is ample scope to devise materials which are more supportive of child-centred methods than are traditional textbooks. But teachers and parents were uneasy about the lack of textbooks which suggests that they have a function which has not as yet been overtaken by the materials produced by the project. Project policy makers might well wish to explore this with some urgency. However, this should not be read as an injunction to revert to traditional textbooks but as an encouragement to ensure that the materials produced by the project make such a decision unnecessary.

The two areas identified in the proposal which we felt to be in need of a fundamental reconsideration were using the community as a resource and developing a remedial unit. Of these, the first is probably the easier to deal with. Involving members of the local community in the classroom and increasing the opportunities for learning to take place through visits outside the school would be easy to implement. The question for project policy makers must be whether they want to move further in this direction or whether they feel on the basis of their experience in the project that this is not the best way to bring about greater community involvement.

The notion of a remedial unit and the expenditure on it leaves more scope for fundamental thinking. Contemporary practice elsewhere has seen a move away from the deficit model of 'remedial teaching' towards the more positive notion of learning support delivered in the ordinary classroom. We noted the aspiration of many primary teachers to improve the pupil-teacher ratio. We noted the extent of child-centred learning which has been possible in the preschool sections where two teachers are available for each class. Might it be that this more positive 'learning support' model offers a better use of resources than seems to have come about through the apparently tangential 'remedial unit'?

Questions about whether this project might have been done differently, whether it represents 'value for money' and issues about its generalisability will be addressed below. There can be little doubt, however, that the project design offered a sound strategy to address the problems identified in the pre-project needs analysis. Indeed, if anything it was an ambitious programme which might not have been successful without the skills which were brought to it by the project director.

4.7.2 The need for continued external support

It is clear that although much has been achieved, there is still a substantial agenda ahead. Work in Standards III and IV remains to be consolidated, the questions above remain to be addressed, the development of teachers as internal sources of support and expertise is still in its infancy and the development of a systematic strategy to truly institutionalise the changes in the sense of persuading the two schools to take the programmes forward without external support would not appear to have been undertaken. The question inevitably arises, therefore, as to whether there is a need for continued external support to achieve the original aims of the project.

We suspect that at least in the short term there is much to be lost for the two schools by not continuing to support the change programme. It may have been a weakness of the original design that a strategy for withdrawal was not included. At a minimum we suspect that an extension specifically designed to support the principals, other senior staff and teachers designated as 'resource persons' to take up the responsibilities currently undertaken by project staff would be desirable. In our view, extension beyond this must depend on criteria which go beyond the impact of the project on the schools themselves and we will return to this below.

5 Conclusions

The last two chapters have described and analysed the case study projects which provide the substantive data for this report. This chapter returns to the fundamental questions about policies for school improvement in the developing world which were described in Chapter 1. The principal questions addressed will be:-

1. Whether our findings from the case studies can offer insights into the appropriateness of AKF's strategies for school improvement;

2. Whether they confirm or call into question the assumptions about optimum policies for school improvement described in Chapter 2; and

3. Whether they offer insights into other questions raised by the terms of reference such as costs and generalisability to other contexts.

5.1 The Aga Khan Foundation model of school improvement

In Chapter 1 the basic hypothesis underpinning the current AKF policy for school improvement programmes was described as calling for 'attention to (1) the individual school, (2) a 'clinical' method of teacher training, and (3) management practices (which) combine to produce the basic formula for school improvement'. This hypothesis subsumes a number of the broader terms of reference set for this study. Each of the three components is therefore worthy of deeper consideration.

5.1.1 Was attention to the individual school appropriate?

Both the Bombay and Kisumu projects clearly focus on individual schools as the basic unit for improvement and this study has shown that considerable progress was made in each case. This in itself is not however proof that focusing on individual schools was the optimum strategy. What advantages did focusing on individual schools bring to these projects and to what extent were they successful?

The reason for focusing on individual schools is to bring about systemic effects which are seen as being more likely to result in sustained changes than alternatives such as focusing on individual teachers or headteachers through traditional programmes of in-service training. The Bombay study clearly suggests that institutional growth resulted from the deliberate policy of the project to include all staff in a review of teaching methods, curriculum design and management structure. The few examples of tension were at least in part attributable to instances where this model was not used - the staff's rejection of the school manager's attempt to impose a review system; the rather dogmatic way in which the project has moved away from traditional textbooks towards what one teacher described as 'no books at all'. Furthermore, one of the medium term weaknesses of the project design has at its roots a decision to concentrate the responsibility for development on a project director and principal consultant who were 'outsiders' to the existing school system. The extent to which the changes which have taken place will be sustained is open to question because we have no evidence as yet of the priority that the school principals might attach to the changes if external resources were to be reduced or withdrawn. Had their role been more central from the outset the extent to which the school as a unit has assimilated the changes would now be more clear.

There is a sense in which the Kisumu project is weaker in this regard. The balance between the focus being on individual teachers and on the institution per se is tenuous. While headteachers were asked to give their support and have been kept aware of developments through headteacher's meetings, there has not been the same deliberate policy to train them as has been made available to classroom teachers. Issues such as how to implement the support and monitoring mechanisms which will be necessary to ensure sustained growth after the investment in staff training have therefore received less attention at the school level than might have been appropriate. There certainly has been a focus on the individual school, but the extent to which it was a systemic focus in Kisumu is perhaps open to question.

The evidence from these studies would therefore suggest that the policy of focusing on individual schools is appropriate. Detailed analysis has also however suggested that in these two cases insufficient attention may be being paid to the role of headteachers within the systems which the projects are trying to influence. There is substantial evidence elsewhere that the quality and the commitment of headteachers is central to institutional health. Both projects may have scope to give this further attention.

A final comment on the focus on individual schools is that despite the strength of this model for bringing about institutional change, there are considerable advantages to be gained from ensuring that teachers and senior school staff also have the opportunity to develop their professionalism by networking with colleagues in other schools and indeed in other school systems. The Bombay project has an insular quality about it even within the Municipality. Because the Kisumu project design deliberately involves many schools, a network has developed naturally, but in this case we were not convinced that given the magnitude of the changes hoped for, project staff had sufficient opportunities to share ideas with others involved in similar tasks. Networking is one of the hallmarks of a profession and has considerable potential to enhance the professional growth of teachers through encouraging them to challenge their assumptions and practices.

5.1.2 Attention to a 'clinical' method of teacher training

The assumed strength of school-based staff development reside in the potential it offers to address teachers interests in the real teaching environments in which they work. This is seen as being in contrast to the lack of influence on classroom practice often associated with more traditional centre-periphery and cascade models for the dissemination of ideas. The additional advantage of the 'clinical' method is that support is offered not only within the school but to teachers in classrooms as they work.

The Bombay project is an example of school-based development, but it is less clearly 'clinical'. In contrast, the Kisumu model which requires 'master teachers' to work alongside their colleagues in their own classrooms for a period of six months is indubitably clinical. One question which arises is whether the outcomes of these two different approaches were noticeably different.

First it is important to establish that both resulted in substantial changes in classroom practice. In the experience of the evaluators the extent of change was greater than would have been expected from most approaches to staff development perhaps with the exception of changes imposed on teachers through alterations to policy on 'high stakes' assessment systems. The nature of the change did however vary within schools and between schools and these differences were greater than the 'mean' differences between projects. This suggests that the outcomes of even school-based staff development depend on a complex chemistry amongst change agents and individual teachers and schools. School-based clinical methods do not offer a panacea. Good and less good results materialise and strategies to sustain good practice will be necessary in both projects to consolidate the effects.

One example of this challenge was noted in relation to teachers who were new to the schools in the Bombay project. There was evidence that 'osmosis' of the principles behind the project cannot be assumed for teachers who did not go through the initial series of in-house activities which led to the original changes coming about. There seemed to be a growing need even by the third year of the project to ensure that a sound induction programme was available to teachers new to the schools. The nature of such induction could be crucial in determining the extent to which new teachers are able to assimilate the philosophies and practices developed by their more experienced colleagues. This led us to speculate on the possibility of the Bombay project adopting a more 'clinical' approach, perhaps using the project's 'resource persons' as the equivalent of Kisumu's master teachers.

The 'clinical' credentials of the Kisumu model are beyond question. This clearly epitomises the notion of staff training being delivered on-site at the point of contact between teachers and pupils. It offers precisely the kind of support which is so often seen as lacking by teachers who are asked to assimilate and implement new ideas to which they have been introduced through brief 'workshops' or conferences, often comprising part of a deliberate 'cascade' from the centre. Furthermore, having been used to deliver training to teachers in 15 schools over a period of three years it has been shown not only to be a 'good idea' but to be a model which can be used in practice. But even in Kisumu, the data suggested that some aspects of the changes in classroom practice may be more difficult to sustain than others. A challenge to this project in the next few years will be to develop strategies which will support continuing growth amongst the trained teachers.

Despite the clear potentials of the Kisumu approach, it is worth recalling that we were not entirely convinced that the process in practice was encouraging a sufficient depth of thinking about teaching methods. There may be some danger that unless negotiation about the changes which will take place involves each individual teacher, changes may take place which are taken up to satisfy the trainer rather than to meet needs for change which the teacher herself values. The extent to which teachers require a sophisticated understanding of the principles behind the method in order to operate effectively is open to debate - after all learning takes place in schools despite our lacking consensus on a theory to explain it. However, at a more pragmatic level, effective teaching requires teachers to vary their methods to best meet the needs of the variety of learning contexts they have to deal with. It follows that they must be aware of their reasons for choosing group work in one lesson, individualised assignments in another and didactic whole class methods for a third. It may be that the Kisumu project should be experimenting with a variety of clinical approaches to identify the strategies which are most effective in bringing about 'deep learning' as well as 'technical' change.

These two studies suggest that, provided appropriate collaborative working practices are used, teachers welcome the kinds of school-based and clinical school-based training models that these projects have developed. We are not of the opinion that the same amount of change would have been as likely to result if less supportive and intensive methods had been used. We are not convinced that either of these projects yet offers an optimally cost-effective method of providing such support, and we will return to that below. In general, however, our findings would support the notion that clinical school-based methods of staff development are supportive of sound school improvement.

5.1.3 Attention to management practices

The two projects gave different degrees of priority to changes in management practice. In Bombay, institutional growth was central to the programme. We have noted that a possible weakness was that the traditional role of the headteacher may have been to an extent compromised by the substantial responsibilities given to the project director and principal consultant. But at the same time review of the roles and relationships of staff, of the relationships between the school management committee and staff and of the ways in which decisions are made even on such controversial matters as a reward system for staff were almost certainly instrumental in nurturing a positive climate for change. We have already indicated the need for an agenda which will ensure the consolidation of these changes once project funds are no longer available. What already exists, however, is substantial experience within the staff of managing change and this will equip the school with the potential not only to sustain the innovations nurtured in this project, but also to assimilate other innovations in future years.

In Kisumu we have identified review of the way in which the training of headteachers is conducted as an issue which might be worthy of further attention. There is no doubt that the project has brought about substantial changes in classroom practice in accordance with the principal objectives identified in the proposal. But as the project has moved out from the 'model schools' to others, it could be accused of prioritising the application of a 'formula' rather than negotiating a strategy for individual schools based on debate and consensus. Headteachers have willingly accepted what is on offer because of the perceived benefits it has for teachers in their schools. But we felt it appropriate to ask whether this necessarily means that they have changed their practices to provide the supportive facilities which will be necessary to sustain change.

One function of a school management system is to nurture a climate which will encourage professional development. Of the two projects we feel that the stronger in this regard has been that in Bombay. In part this is because it is easier to bring such changes about in a project which focuses on two schools rather than 15. However, more could be done in this area in Kisumu. The fact that comparison with the strengths of the Bombay project in this area prompt us to offer these comments suggests that focusing on management practices as a central component of school improvement strategies is indeed appropriate.

5.1.4 Child-centred learning

A move towards more child-centred teaching strategies was not an explicit component of the hypothesis as to an optimum strategy for school improvement, but it is clear that changes in classroom practice were central to both projects. A brief comment on the appropriateness of this policy and a comment on how our findings relate to existing knowledge about student-centred learning seems necessary.

First it should be made clear that movement away from rigid didactic methods towards more active and participatory strategies is compatible with what is widely considered to be contemporary good practice in the primary classroom. The reasons have already been spelled out; in addition to bringing about traditional 'academic' outcomes, it has been shown that child-centred approaches offer greater potential for the development of a range of personal and social skills which are widely valued in adult life and in employment. Children prefer working in the varied and stimulating ways which characterise good child-centred learning and this leads to attitudinal and motivational growth.

The question arises as to whether these projects were successful in bringing about changes in this direction. A substantial proportion of the resources available to the project was devoted to answering this question through the in-depth analysis of classroom practices. What should be inferred from the outcomes?

One defensible interpretation might be disappointment that in both projects we found classrooms which were still dominated by teacher-centred methods. The amount of good interactive groupwork and differentiation by individual pupil need was limited in most classrooms. If the criterion used to judge the effectiveness of these projects should have been that very little teacher-centred work was observed, their standing might not be high.

We do not however consider this to be the appropriate interpretation. In fact, the fairly widespread shift of even the teacher-centred work towards the needs of groups and individuals rather than the whole class should not be underestimated. Nor should the difficulties faced by teachers in trying to cope with classes of 70 pupils with inadequate resources. We would certainly have expected to see far more group work, paired work and projects in primary classrooms in, for example, the United Kingdom. But primary teaching in the developed world is less encumbered by rigid national syllabuses leading to external examinations which determine access to secondary education than is the case in Kenya and India. Within the limitations of the situations in which they are coping, the best examples of practice which we observed were therefore impressive.

However, it is a universal problem that the challenges of moving towards child-centred methods are underestimated. The evidence is that, for example, children have to be taught how to learn in the context of interactive groupwork and teachers have to be trained to use it to advantage. There are equal if not greater problems in supporting teachers who choose to differentiate their teaching according to individual or group need. These challenges exist even in the well-resourced classrooms of the developed world.

The observation this leads us to make is that if school improvement projects such as those sponsored by AKF are to pioneer the use of innovative methods, projects directors and the equivalent of Kisumu's project assistants and master teachers or Bombay's 'resource persons' must have access to 'state of the art' thinking and should be given the opportunity to experience working in successful child-centred contexts themselves wherever possible. This might involve working alongside teachers experienced in these methods elsewhere as well as having resources such as books, journals and videos available in a project resource library. Those responsible for encouraging the introduction of new methods in the developing world face even greater challenges than those elsewhere. Pioneering projects such as those in Kisumu and Bombay have the opportunity to develop child-centred strategies for the developing world and those charged with this responsibility need substantial support themselves.

5.2 Other determinants of successful school-improvement policy

In Chapters 1 and 2, four principal determinants of quality were identified from the literature. These comprised, material inputs, teacher quality, school management and structure and the nature of implementation strategies for change. Much of this has been covered in our account of the relationship between project experience and the AKF hypothesis described above. But are there aspects of what is known about optimum strategies for school improvement which were not dealt with explicitly by the AKF model?

5.2.1 Material inputs

Analysis of the design of these projects in relation to what is known about the efficacy of material inputs offers a rather varied picture. Policy in relation to class size accords with the known evidence that there is little to be gained by making marginal improvements. Substantial changes did take place in the preschool classrooms in Bombay when the pupil-teacher ratio was halved and this does illustrate the potential of radical change to class size. Potentially as fruitful must be the way in which class sizes were halved in the primary sections for Mathematics, and similar effects might be achieved in Bombay by using the 'remedial' teaching resource to provide learning support through team-teaching in normal classrooms. The potential for similar innovations in the less well-resourced classrooms in Kisumu is probably limited although the cost effectiveness of enhancing school staffs with a learning support facility might be worthy of exploration.

The tension between existing evidence that young children learn more effectively in the language of the home and the clear aspiration of parents to ensure that their children are competent in English was clear in both projects. In fact in Kisumu in particular, actual classroom practice comprised what appeared to be a sensitive compromise with most learning taking place in the mother tongue in the early years. The strategies used in Kisumu were reminiscent of contemporary practice in many countries in Western Europe where children are introduced to several languages from an early age with often impressive results.

In Bombay there seemed to be more pressure to adopt a basically English-medium strategy although again in practice, teachers appeared to be adopting a sensitive compromise particularly in the early years. Teachers could of course be encouraged to differentiate the extent to which children's learning difficulties are a function of language competence, but whether parents would welcome a radical solution such as running a mother tongue stream for some pupils must be open to question.

The only limitation on the availability of learning materials in Bombay arose from the perhaps optimistic assumption that teachers would be able to produce their own. In Kisumu, however, the lack of textbooks in some schools in a textbook-oriented system raises more fundamental questions. It seems likely that some of the differences in pupil competence pointed up by our study are attributable to differences in the availability of books and materials. This must raise questions about the value of encouraging teachers to shift towards groupwork and individualised work when there are so few learning resources available in the classroom. The minimum threshold of providing secure classrooms and appropriate classroom furniture was being met in Kisumu, but because textbooks are the responsibility of parents, little advance had been made in this area.

5.2.2 Teacher quality

Teacher quality was central to both projects. Indeed, the pioneering work in the development of a school-based 'clinical' approach to in-service training which these projects have conducted offer a model which could add substantially to the limited range of knowledge about how to support teachers noted in the literature. If there is a weakness it might be in the lack of clear strategies to develop teachers' linguistic skills. Their importance was explicitly recognised in Bombay but there was no apparent systematic strategy for improvement. No mention was made of this as an issue in Kisumu although given the widespread use of English in Kenya, it is probably a more sensitive issue to deal with.

5.2.3 School management and structure

There was nothing to suggest that the schools in which we worked were other than 'ordered'. Indeed, the aims of both projects included explicit strategies to tighten up on such matters as attendance. If there was a weakness it may have been in the limited attention being placed on the monitoring of individual progress, but this is a mamoth task given the overcrowded curriculum and the size of classes, particularly in Kisumu.

5.2.4 Implementation strategies

Some aspects of the implementation strategy for these projects were exemplary, while others leave room for development. Both projects can be characterised as being efficiently led and managed and both have resulted in substantial and worthwhile changes in the implementation phase. A sensitive and flexible policy by AKF has meant that in both cases some deviation from the original design to accommodate the lessons of experience has been possible. Monitoring and on-going self-evaluation through thoughtful quarterly reports has been a hallmark of the Bombay project in particular and the existence of this study underlines AKF's commitment to learning from their experience. A weakness common to both projects however is the low priority given to systematic strategies for withdrawal although it has to be said that it is unusual to find projects which are managed from the outset to become unnecessary.

5.3 Costs

These projects were implemented in a situation where there is competition for scarce resources. It is therefore important to consider whether their costs were justified and whether changes should be made to any future such developments to improve their cost effectiveness.

5.3.1 Were the project costs justified?

The 'justification' of costs is a complicated issue. Much depends on the assumptions which are made about the benefits which will ensue. The range of potential beneficiaries might include the teachers and pupils in the schools involved in the project, those in schools in the vicinity which might use the project schools as a model, those elsewhere whose education might be influenced by the project, those who are planning similar projects and might learn from the experience and those who sponsor projects and seek guidelines on future strategy. The justification of costs therefore transcends simple questions about whether the project successfully achieved its aims. It includes more complex questions about the value of these aims, values which can of course have different weights depending on the interested parties, as well as questions about the range of interested parties whose interests it should and did satisfy. It is because of this complex web of 'justification' that cost issues are frequently ignored in evaluations of educational development projects.

To avoid further complication, it will be easiest if a value position is stated for this evaluation. It is the opinion of the writer's that in a situation of substantial need and scarce resources, development projects competing for external funding must be of a sufficiently high standard to be of value not only to the immediate beneficiaries but to be generalisable to those facing similar problems who by chance did not come to be the immediate beneficiaries of the investment. Furthermore, projects should be so designed as to be accessible to developers or decision-makers elsewhere who find themselves tackling similar problems.

It will be clear from our analyses above that both of the case study projects 'added value' to the systems they were designed to directly influence. The Kisumu project demonstrably influences more schools and meets the needs of all sections of the community including the most disadvantaged. The design of the Bombay project is less ambitious in this regard, focusing as it does on the needs of only two schools.

It is also the opinion of the evaluators that in both projects, much of what has been achieved is of sufficient quality to be of widespread interest to other educationists and developers. The substantial systemic effects achieved in the Bombay project are a worthy study of how to bring about institutional change which will be enhanced if in the coming years it can be sustained with less external support. The strong clinical model of the Kisumu project has much potential elsewhere, especially if future developments enhance its cost-effectiveness, a matter which will be returned to below. An additional attraction of the Kisumu project is its potential as an illustration of sponsoring a project which was seen as central to the needs of the local community. In short, both projects represent 'value for money' on the criterion of generalisability.

It is not so clear, however, that either project was originally designed to be accessible to others although clearly this evaluation will aid the process and hence help to justify the project costs. It would seem appropriate however to ensure that in the design of future projects by the Foundation, strategies to record progress and to support the dissemination of good practice are built in from the outset.

5.3.2 Could the projects be more cost-effective?

With the minor reservation that it would have been preferable had the Bombay project been designed to have an immediate effect on a larger number of schools and perhaps on a wider section of the community, it is the opinion of the evaluators that these projects represented good value for money. But it does not necessarily follow that experience cannot suggest ways in which they could be more cost-effective.

It is important to recognise that there are two cost-effectiveness questions to be asked. The first is whether if the project were to be replicated elsewhere, different and less expensive strategies would yield comparable results. The second is whether, if the present projects were to be extended, the resources available could be used differently and more effectively.

The first question is the easier to answer. The unit costs per teacher and pupil influenced were highest in the first and second years of both projects than they came to be in the final year of the present phases. But this does not mean that the projects developed strategies which were more cost effective and which could have been used from the outset. The difference represents the difference between the more expensive 'learning' phase and the less expensive 'implementation' phase. In our opinion the 'learning' phase was essential to both projects. If projects such as these are to generate high quality insights that work they must be grounded on real experience. Projects need a period to make mistakes and to learn from experience, They need the expensive resources of experienced educationists as their directors. While marginal adjustments to cost might have brought about savings, these projects were arguably if anything under resourced particularly in the scope that key personnel had to develop their skills by engaging with others involved in similar enterprises elsewhere.

If there is a cost weakness shared at the present time by both projects it is that even at the current levels of cost per teacher (£385 in Bombay and £1800 in Kisumu) and cost per pupil (£15 in Bombay and £10 in Kisumu), it would be difficult to replicate the approaches developed widely in either country. The Bombay design is more cost-effective in training teachers because the project's resources have been allocated in a way which will encourage continuing professional growth amongst the staff. The limitations of the design which confines this growth to the two schools is apparent in the costs per student which will only fall off slowly if the project continues because the limit of influence within the present design will be the total role of the two schools. To become more cost-effective this project will either have to extend its influence beyond the two schools (which has never been seen as a priority) or reduce its costs substantially. Perhaps the most powerful test of the generalisability of this project would be to withdraw the support of the project team and record whether the present level of activity and growth is maintained under the stewardship of the two headteachers The paradox is that to do this systematically would require monitoring and evaluation costs which would not be dissimilar to the salary costs of the project staff.

The situation in Kisumu is more complex. If the project were to be extended for a further three years and if the present level of training were to be maintained, the unit cost per pupil influenced would fall to approximately £5. We have shown in this project that it is appropriate to consider at least two models of attributing unit costs per teacher. One of these assumes a continuing influence once teachers have been trained and the challenge to this project must be to develop means of ensuring continuing growth after initial clinical training. This could follow, for example from a greater initial emphasis on institutional growth such as to ensure that the school as a unit takes on the same responsibilities as those influenced in the Bombay project.

At the same time the project should be encouraged to explore the relative advantages of different modes of clinical support. There was criticism of the present six months intensive activity model from many of the project assistants and master teachers who considered that much could be achieved in half the time. Other approaches might include a series of two week 'in classroom clinics' spread over a couple of years, a combination of more traditional in-service courses but with systematic clinical follow-ups, and as has already been suggested above, deliberate attempts to inject a stronger element of negotiation in the process. The relative advantages and disadvantages of these methods would have to be monitored carefully. However if steps are not taken to make this project more cost-effective in terms of teacher effects, it will take another nine years at present levels of funding to reach each of the schools in the Municipality without taking on board Standard 4 classrooms as in the original proposal.

5.4 Implications for policy

This report has deliberately focused its attention on the detailed evaluation of two of the Foundation's projects. The comments offered have almost entirely been grounded on what was found in these analyses. The purpose behind the exercise was however wider than conducting two project evaluations. What was sought was a commentary on AKF's programme policy and indications of the lessons which might be learned from experience.

First, it seems appropriate to offer a comment on AKF itself. It was the opinion of the evaluators that the Foundation is managing a programme which is both efficient and effective. The professional support offered by the Foundation's education officers was clearly welcomed and valued by those managing the projects. The managers of the projects in both Kenya and India were also supportive and industrious. The way in which resources have been used, particularly in Kenya, to improve facilities for all sections of the population underlined the Foundation's commitment to education in the developing world irrespective of the culture or the religion of the beneficiaries.

It is therefore within the context of what the case study projects suggest to be a commendable international programme that we suggest that our work has yielded the following lessons which might be of value to sponsors of school improvement programmes in the developing world in the future.

Lesson1: Sponsors should be clear in distinguishing between the developmental aspects of projects and their potential to build generalisable models of practice.

Lesson 2: If 'generalisability' is important, a profile of potential beneficiaries should be drawn up from the outset and mechanisms should be built into the project design to optimise its value to these groups.

Lesson 3: Steps should be taken to ensure that the work of individual projects is accessible to others who might benefit from the experience. A high priority should be attached by project directors, perhaps working in collaboration with funding agency's project officers, to writing descriptive papers and booklets about their work.

Lesson 4: Project planning agenda should deliberately include a strategy for the dissemination of good practice as the project progresses.

Lesson 5: Those in receipt of funding should be clear from the outset that the resources are intended to be for 'pump priming', that the solutions developed have to be sustainable within existing budgets, and that the most stringent test of success will be whether the changes brought about by the project will be sustained once funding has been withdrawn. Clarity might be gained by including clear statements about 'additionality' and 'integration' in the proposals.

Lesson 6: Agencies conducting projects such as these should have clear policies in relation to their contractual intentions for project staff. The normal cycle of project implementation could be characterised as an initial period of enthusiasm, a subsequent period of sustained implementation and a final phase of rundown. Experience would suggest that the last phase, which can be as much as the final third of project time, is often poor value for money, and at least part of the problem arises from staff uncertainty about their future and indeed changes in key personnel as individuals secure continued employment by moving.

Lesson 7: Conducting agencies should be pro-active in nurturing the skills of key players such as project directors, rather than assuming that they are self-sufficient and self-sustaining.

Lesson 8: Full advantage should be taken of conducting agencies networks to share experience amongst their own projects and with similar work funded by other NGOs. There may be potential to seek sponsorship for regular international conferences on specific themes such as 'child-centred learning', 'institutional growth' or 'school-based staff development'.

Lesson 9: More attention should be paid to requiring project proposals to be more precise in describing what will constitute the intended effects of the programme. The danger of overemphasis on easily measurable performance indicators must be avoided, but without clarity those responsible for implementation will find it difficult to judge whether they are being successful.

Lesson 10: Conducting agencies and funding agencies should have a policy on monitoring and evaluation. More attention might be given to systematic self-evaluation based on pro-formae designed to point up the most central characteristics of projects. A reasonable proportion of a project's budget should be devoted to external evaluation. There are benefits to be gained from planning external evaluation into project programmes from the outset.

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Appendix 1 Terms of reference for the study

(1) **Project Design**

Document the objectives of the current programme, and how have they changed during the life of the project. Assess the extent to which objectives are clearly specified and appropriate.

Identify the main constraints to improve educational performance. Consider which of these constraints the project addresses.

Explain and evaluate the criteria which were used to select schools assisted under the projects.

(2) **Impact**

Evaluate the impact of the project through a comparison of the project schools with comparable control schools which might be expected to be of a similar standard. The assessment should draw conclusions based on evidence in the following areas:

- Teacher performance and methodology, as a result of school-based staff development, to be determined using a structured definition of desirable environmental components.
- Class environment, to be determined through structured interviews with head and classroom teachers.
- Student attainment, to be determined through the structured interviews with teachers and through a variety of assessment instruments that should be agreed with local teaching staff and implemented by class teachers under the supervision of the local researcher. The tests should be designed with a view to providing information that can be used as base-line data, with the possibility of a second phase evaluation that could identify trends over time. They should also be devised to be unbiased between project and control group schools, focusing on core activities that are taught in both schools. The evaluator must ensure that a large enough sample is tested to be statistically significant.
- Any other indicators of project impact as determined by the evaluation team.

- Whether the project schools included pupils from the most disadvantaged section of the community and whether the projects as a whole have a discernible impact on teachers and children from the poorer sections of the community.

(3) Costs

Document and evaluate the project costs.

Calculate the unit costs of the project per student assisted under the project, and examine how these have varied over time as new schools have been brought into the projects.

Assess the unit costs of the project per student, (bearing in mind the experimental nature of the projects), through a comparison of project costs with the approximate overall cost of education in the project schools, and national cost statistics of government funded schools of the age group.

(4) Conclusions

In the light of the costs and impact assess whether the project evaluation provides clear-cut evidence that the project costs are or are not justified, or alternatively if no definitive conclusions can be drawn: and, comment on the cost-effectiveness of the projects with reference to any available information on the unit cost per student of comparable projects funded by other donor agencies.

Consider the extent to which the projects are sustainable in institutional terms, including the likely extent to which they are likely to need continued external support, and whether they provide a suitable model to replicate for additional donor initiatives.

For subsequent initiatives within these projects, specify ways in which the design can be improved (with regard to cost-efficiency and effectiveness of the project and project management as well as the overall school improvement objective of the programme).

Summarise the lessons that can be learned from the differences in the design of the projects, based on the apparent efficacy of the two projects evaluated, and also drawing on available information of other similar projects of the Aga Khan Foundation.

Appendix 2 Evaluation instruments

Research Instruments

As was made clear in Chapter 1 of this report, considerable effort was committed to ensuring that the findings of the study would be based on data which had been collected systematically through the use of well-designed research instruments. From the outset it was realised that this was a considerable challenge. The tasks included:

- Reviewing the literature to ensure that as far as possible the study would build on existing knowledge rather than start from scratch.
- Familiarisation with the projects to ensure that appropriate questions tailored to individual circumstances would be asked.
- Conceptualising the research questions and ensuring their articulation with the Terms of Reference for the study.
- Designing instruments which would provide accurate data to inform answers to the research questions.
- Trialling the instruments.
- Training the users of instruments, especially those such as observation schedules which relied on rater's subjective analyses in quite difference circumstances.

Intellectually these tasks were no more demanding than they would have been in any other project. Logistically, however, the situation was different. Familiarisation with the projects meant a week spent in both Bombay and Kisumu. Conceptualising the questions and designing the instruments meant that researchers from three continents had to meet together. Trialling and training involved colleagues working together in the field. All this would have been difficult in itself, but the time-scale for the project meant that although none of the team could be available full-time because of prior commitments, there was little more than two months between start up and gathering the first data from schools.

It is thus important to recognise that although the instruments we used were both sound and robust, there is scope for improvement in all of them. Furthermore, although some readers might be tempted to use them for their own purposes, this should only be done with caution. The way in which they were used and the informal shared understanding amongst the authors of this report who constructed them was just as important as the instruments themselves in determining the quality of our findings.

Five types of instrument were used and this appendix contains examples of each of them. They included semi-structured interviews schedules, questionnaires, observation schedules, profiles and tests. The choice of instrument was determined by the question being asked, the size of the population from which the data were gathered and the resources available to the project.

Semi-structured interviews

When the persons being interviewed had an extensive experience of the project and where the resources available were sufficient to allow them to be approached individually, interviews were the preferred means of data collection. When an agreed set of questions had to be asked and when the interviewer was finding his or her way around a complex area, semi-structured interviews were the preferred option. As the example shows, the questions were sequential and precisely defined. However, in most cases the responses recorded were completely open and the interviewer was expected to probe for a deeper understanding of the interviewee's response. Furthermore, there was no necessary obligation to address the questions in sequence; if a respondent answered a later question inadvertently there was no need to repeat this at a later stage in the interview. A 'closed' interview would have offered little more than a questionnaire applied orally and would have offered far fewer illuminative insights. An unstructured interview would also have involved extensive probing, but there would have been no guarantee that all of the issues were covered with each of the interviewees.

Interview Schedule for Master Teachers (Kisumu)

1. How long have you been a master teacher?
2. How long have you been a primary school teacher? Tell me a little about your teaching career.
3. In the new approach to teacher-training, you come into the classroom and train the teacher "on the job". Could you tell me a little about this experience and what it has meant for you?
4. What are the teachers' attitudes towards this type of training? Do they like it or are they suspicious of your role?
5. When you do a "demonstration" lesson, what is the role of the teacher?
6. When the teacher does the demonstration, what is your role? Supervisory, evaluatory or participatory?
7. What mechanisms have been instituted to ensure a positive working relationship between yourself and the teachers?
8. What kinds of changes have you noticed in the children? – more inquisitive, curious, want to discover etc.
9. How does your work relate to that of the project assistants? Do you complement each other or duplicate each other?
10. What are the mechanisms available for challenging your understanding of child-centred learning?
11. What kinds of courses have you attended? Locally or abroad?
12. What in your view, is the most significant impact that the project has had on classroom practice? On your school? Parents and community?
13. What are the main constraints that you have faced in the project?
14. Do you feel that the remuneration you receive is commensurate with work done?
15. If you were to do this project again, what would you do differently?
16. Any other comments you wish to make?

Questionnaires

Questionnaires were used extensively in the project when the population being addressed was too large to speak to individually. In both projects this applied to classroom teachers who were too numerous to interview individually. In Bombay a questionnaire was also used with parents, translations being available in several languages. An example of these questionnaires is attached as Annexe A.

Questionnaires have strengths but also some distinct weaknesses. Their greatest strength lies in the opportunity they provide to offer systematic quantifiable data on the extent to which a view is held or a stance is taken. Their weakness lies in the need to pre-structure responses and hence constrain individual descriptions and insights. Open-ended questions can circumvent this to some extent, although their use tends to reduce the response rate and also cause greater complexity at the stage of analysis because open responses have to be coded.

Observation schedules

If a school improvement project sets its targets on bringing change in the way that children are taught, it is important that any evaluation of its effects is focused on what happens in classrooms. Too often the methodology used to document change relies on teachers' self-reports of the way they teach. In this project, approximately half of the data collection time was devoted to sitting in classrooms observing what actually took place.

Observation comprised three activities. First, unstructured notes were taken relating to the classroom environment and the lesson activities. However, experience suggests that these subjective observations are unconvincing when hard questions about time on various tasks are asked. Consequently the second major activity comprised systematic observation of pupil and teacher behaviour in fourteen clearly differentiated areas. As can be seen from the accompanying illustration the first five of these focused on teacher activities and the remainder on pupil activities. In both cases the activities were chosen to allow differentiation between traditional teaching methods and more pupil-centred approaches.

Kisumu and Bombay Classroom observation schedule

School name____________________ **Teacher**__________________ **Subject** ____________________ **Date** ______________

	Whole class	Small group	Individual		Whole class	Small group	Individual		Whole class	Small group	Individual		Whole class	Small group	Individual		Whole class	Small group	Individual		Whole class	Small group	Individual
Categories																							
1. Teacher talk/ demonstration or explanation related to lesson content																							
2. Teacher instructions or activity on classroom management																							
3. Teacher-initiated questioning or discussion																							
4. Teacher's management activity not related to lesson																							
5. Teacher's discipline related activity																							
6. All pupils working on the same task																							
7. Pupils working on group tasks – most highly involved																							
8. Pupils working on group tasks – most not involved																							
9. Pupils working on clearly individualised tasks																							
10. Pupils involved in interactive discussion amongst themselves																							
11. Pupils responding to teacher-initiated questions																							
12. Pupil-initiated discussions with the teacher																							
13. Pupil demonstration/activity related to lesson																							
14. Pupils involved in 'off task' activities																							

Pupil categories D = Dominant
P = Present

The procedure involved the researcher placing his or herself in a position where the lesson could be observed as unobtrusively as possible. The researcher watched the proceedings of the class for a minute taking account of all of the categories of pupil and teacher activity. During the next minute, the researcher paid no attention to what was happening in the class but instead recorded the proceedings of the previous minute on the observation sheet. This therefore provided a 50% sample of the use of classroom time in any lesson.

The teacher activity categories were recorded as relating to the whole class, to small groups, or to individuals. In choosing amongst these the researcher recorded the most dominant category in any minute. Pupil activities were recorded as being either dominant or present. In both pupil and teacher categories it was therefore normal for several activities to be observed in any recorded minute.

A second observation schedule was used to record aspects of non-cognitive competences developed in the classroom. This was very important for the project. Most claims for moves towards student-centred learning are centred not only on the development of subject related skills and competences but also on a range of non-cognitive skills such as developing self-confidence, leadership skills, creativity etc. Any evaluation of such a project is inadequate if it does not take account of changes in this area.

From the outset of the study it was recognised that the resources would not allow 'measurement' of the development of these skills in relation to individual pupils. The observation schedule approach shown below was therefore designed to measure two aspects of non-cognitive competence within the resources available. The first of these was the extent to which there was an opportunity in the classroom for pupils to develop competences. The researcher was asked to take note of any opportunities observed during the lesson and at the end of the lesson state which of these had or had not been observed. The extent to which children appeared competent (for their age) in these skills was the second focus. The researcher was asked to reflect on the extent to which pupils appeared to be competent in these skills and was also asked to indicate whether this judgement related to most of the pupils or only some of them. Space was also left on the observation schedule for comments.

Although these observation schedules superficially appear to be very simple and straightforward, they were by far the most demanding instruments used in the project. Considerable effort was put into ensuring that as far as possible the two observers had a shared understanding of the categories used. This was achieved first by spending several days developing the schedule which went through more than six drafts before it was acceptable. The schedule was then applied to classes in Scotland and the ratings of the two researchers were compared and debated. Finally, in order to ensure the maximum possible agreement, the researcher responsible for the Kenyan study spent a week in Bombay working with her colleague there to collect the observation data in the Bombay schools and thus again share experience which would improve the inter-rater reliability necessary to produce data of the necessary quality. Readers considering using instruments of this kind in any substantive study might wish to contact SCRE for further details.

Recording Sheet for Non-Cognitive Skills (Kisumu and Bombay)

School **Class** **Lesson** **Date**

Date	Was there an opportunity to develop this competence?		Did the children appear to be skilled in the competence?					Comment
Competence	YES	NO		Highly Competent			Found it Impossible	
Children working with others	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Working cooperatively in groups or pairs	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Solving problems	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Acting with obvious confidence	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Developing leadership skills	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Taking independent initiatives	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Being creative	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Developing practical skills	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Interacting freely with the teacher	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Expressing opinions confidently	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	
Thinking for themselves	☐	☐	Most	1	2	3	4	
			Some	1	2	3	4	

Profiles

Evaluations rely on sound systematic data. The interview schedules, questionnaires and observation schedules described above focus on individuals perceptions and classroom processes. Another important set of data, however, is the description of the context in which teaching and learning is taking place.

To ensure comparability both within descriptions of the individual projects and between the two projects the team decided to draw up profiles which would describe such features as the number of pupils, classroom organisation, availability of text books and other resources and similar logistic features. An example of such a profile is shown below.

Classroom Context Profile (Kisumu)

School ______ Subject ______ Time ______

1 Class ______ 2 Number of pupils ______

Boys ______

Girls ______

3 Teacher ______

Male ______ Female ______

Trained ______ Untrained ______

4 Class organization

No of groups ______

No in each group ______

5 How are the groups decided upon?

Ability ______

Heterogeneous ______

6 Are the groups the same for each lesson?

Yes ____ No ____

7 If yes, what criteria are used?

______

______

8 Availability of textbooks

Each pupil has one Yes ____ No ____

One between two pupils Yes ____ No ____

One between three pupils Yes ____ No ____

One between four pupils Yes ____ No ____

Other Yes ____ No ____

9 Availability of writing materials

Each pupil has an exercise book Yes ____ No ____

Each pupil has a pencil/pen Yes ____ No ____

Writing paper is shared in a group Yes ____ No ____

10 Availability of resource materials, manila sheets etc

Adequate Yes ____ No ____

Inadequate Yes ____ No ____

Not available Yes ____ No ____

11 Security of classrooms

Door Yes ____ No ____

Windows Yes ____ No ____

Roof Yes ____ No ____

12. Availability of storage space.

Cupboards Yes ____ No ____

Lockers Yes ____ No ____

13. Availability of chalk and chalkboard.

Adequate Yes ____ No ____

Inadequate Yes ____ No ____

14. General health status of children.

Well nourished Yes ____ No ____

Under nourished Yes ____ No ____

Well dressed Yes ____ No ____

Clean and healthy Yes ____ No ____

Cold and miserable Yes ____ No ____

15. Availability of working space for children

Adequate Yes ____ No ____

Crowded Yes ____ No ____

16. Any general comments to be made about the classroom conditions.
Wall charts, gender differences etc.

______

______

______

______

Mathematics test (Kisumu)

A CROSS-NATIONAL STUDY OF THE SCHOOL IMPROVEMENT PROGRAMME (SIP)

Sponsored by the Aga Khan Foundation

BOMBAY, INDIA and KISUMU, KENYA

MATHEMATICS TEST

Name: ______________________

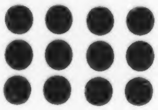
School: ______________________

Class: ____________ **Division/Stream** ____________

Date: ____________

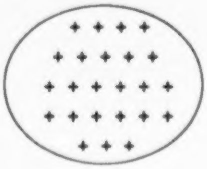
Count and write the number of objects.

1.



= ☐

2.



= ☐

3. Put a circle around the number **fifty-six.**

19 31 28 56 96 65

Write the following numbers in words

4. 53 =

5. 28 = ______________________

6. Arrange the numbers in increasing order (smallest to largest).

9, 21, 15, 84, 73, 32

Answer: ______________________

7. Arrange the numbers in decreasing order (largest to smallest).

7, 19, 4, 92, 87, 76

Answer: ______________________

8.

$$\begin{array}{r} 11 \\ 24 \\ +\ 32 \\ \hline \end{array}$$

9.

$$\begin{array}{r} 17 \\ +\ 26 \\ \hline \end{array}$$

10.

$$\begin{array}{r} 72 \\ 31 \\ \hline \end{array}$$

11.

$$\begin{array}{r} 95 \\ 74 \\ \hline \end{array}$$

12. Owino caught 25 fish in the morning and 14 fish in the afternoon. How many fish did he catch altogether?

Answer: ______________________

13. There are 45 children in standard three green. There are 22 boys. How many girls are there?

Answer: ______________________

14. A Sh 1 coin = ________ 50 Ct coins.

15. A 50 Ct coin = ________ 5 Ct coins.

Annex A

Teacher Questionnaire (Bombay)

A CROSS-NATIONAL STUDY OF THE SCHOOL IMPROVEMENT PROGRAMME (SIP)

Sponsored by the Aga Khan Foundation

BOMBAY, INDIA and KISUMU, KENYA

Dear Teacher

You have been part of the School Improvement Programme initiated by the Aga Khan Education Services with a view to improving the quality of learning in your school. The AKF has initiated such efforts in several other countries and would like to examine the scope for continuing and extending them to some other areas. In this context, it has been decided to conduct a study of the SIPs at Bombay, India and Kisumu, Kenya with the purpose of documenting the experiences and identifying the lessons to be learned from these Programmes.

As an important participant in the ongoing efforts at your school, your experiences and insights about the project, its functioning as well as its impact will be very useful. We shall be grateful if you could share with us your views and observations by responding to the questions given in the following pages.

Your responses will be kept completely confidential and will remain anonymous. Please feel free to express your opinions in a frank and candid manner.

We gratefully appreciate your cooperation.

Study Team
June-July 1992

Teacher Questionnaire

For office use

I Personal Information

1. How long have you worked as a teacher

   (a) In this school ____________ years

   (b) In other schools ____________ years

2. Academic qualifications ____

   ____

3. Have you undergone teacher training? Yes ☐ No ☐

   If yes, specify the particular degree/diploma/certificate obtained and indicate the institution where you studied for the purpose.

II School Management

1. Do you think that there has been a significant change in the style of school management in the following areas since the introduction of SIP?

	Changed a lot	Changed to some extent	Marginal change	No change
The way duties are allocated	☐	☐	☐	☐
The amount of interaction between teachers and school managers	☐	☐	☐	☐
The nature of interaction between teachers and school managers	☐	☐	☐	☐
The balance between 'support' and supervision by school managers	☐	☐	☐	☐
Teachers involvement in management issues	☐	☐	☐	☐

For office use

2. Do you really feel that your views are valued by the school's administration?

Always ☐
If my views are similar to those of others ☐
When I agree with the views of the administrators ☐
Very rarely ☐

II Professional Development of Teachers

1. How many inservice training programmes or workshops have you attended under the SIP? Specify the number.

____

2. Please indicate the themes which have been covered in the workshops you have attended and the extent to which each has influenced the way you teach.

Theme	Covered or not		Influence on teaching			
	Yes	No	A lot	Quite a bit	A little	None
Upgrading subject knowledge	☐	☐	☐	☐	☐	☐
Child-centred learning methodology	☐	☐	☐	☐	☐	☐
Curriculum redesign	☐	☐	☐	☐	☐	☐
Preparation of learning material	☐	☐	☐	☐	☐	☐
Lesson planning	☐	☐	☐	☐	☐	☐
Classroom management	☐	☐	☐	☐	☐	☐
Development of self-awareness	☐	☐	☐	☐	☐	☐
Others (please specify)	☐	☐	☐	☐	☐	☐

____

3. Are you satisfied with the way inservice training is being organized in your school in terms of:

	To a great extent	To some extent	Marginally	Not at all
Choice of content	☐	☐	☐	☐
Resource Persons	☐	☐	☐	☐
Its relevance to your needs	☐	☐	☐	☐

For office use

4. There has been an attempt to depend on in-school resources for conducting training programmes instead of getting experts from outside. How do you react to this?

We should not depend on outside experts ☐
We benefit more from outside experts ☐
We need more time to develop in-school expertise and therefore should continue with outside experts ☐
We should have combination of both in-school and outside experts ☐

III Curriculum Development

1. In your school, there has been an attempt to reject the curriculum being followed in the Bombay schools and evolve a new one. Do you consider that this has helped in improving the quality of education provided in the school?

It is an essential step for improving the quality ☐
We could improve quality without changing the curriculum ☐

2. In what way is it different from the curriculum followed in other schools?

	Very true	True	Not really true	Not true
It relates to needs of the children in a better way	☐	☐	☐	☐
It reduces the information burden on the child	☐	☐	☐	☐
It does not place as much emphasis on writing at the early stages of schooling	☐	☐	☐	☐
It is less involved with rote memorisation	☐	☐	☐	☐
It is better at helping the child to develop independent thinking	☐	☐	☐	☐
It is better at developing group participation skills	☐	☐	☐	☐
It focuses on helping the child to deal with personal needs of daily life more effectively	☐	☐	☐	☐
It is better at helping the child to develop the ability to speak fluently in English	☐	☐	☐	☐

3. To what extent have the following been responsible for actually formulating the curriculum that you are now following?

	A lot	Some	Minimally	Not at all
Outside experts such as Dr Thakur	☐	☐	☐	☐
School authorities, Principal, Headmistress and others	☐	☐	☐	☐
Individual groups of teachers teaching in the school	☐	☐	☐	☐
All teachers in a collaborative manner	☐	☐	☐	☐

For office use

4. Are you satisfied with the role you have been playing in the curriculum redesign process?

Fully satisfied ☐
Partially; I can do much more ☐
No, this is not my job ☐

5. Does the new curriculum more effectively relate to the needs and interests of the children than does the traditional curriculum?

To a great extent ☐
To some extent ☐
Marginally ☐
Not at all ☐

6. Do you consider that the curriculum followed by you is deficient in any aspects such as reading and writing skills, problem solving abilities, knowledge of basic facts on science and society, and so on? Please specify

(a) ____
(b) ____
(c) ____

7. Do you think that the curriculum redesign process has made teaching-learning process more directed and purposeful?

To a great extent ☐
To some extent ☐
Marginally ☐
Not at all ☐

8. To what extent are you and your colleagues convinced that the new approach adopted for developing your own curriculum is appropriate?

Fully convinced ☐
Partially convinced ☐
Not convinced ☐
Not at all convinced ☐

For office use

9. Have you ever felt that changes in the curriculum are being thrust on you against your will?

Almost always ☐
Many times ☐
Some times ☐
Not at all ☐

IV Classroom Teaching – Learning

1. Overall, to what extent do you feel that the way you teach has been influenced by the SIP?

A lot	Quite a lot	Marginally	Not at all
☐	☐	☐	☐

More specifically, to what extent have the following changed:-

	A lot	Quite a lot	Marginally	Not at all
The way in which you organise your classroom	☐	☐	☐	☐
The kinds of material used for teaching	☐	☐	☐	☐
The activity level of learners	☐	☐	☐	☐
The time actually spent by children on learning tasks	☐	☐	☐	☐
The amount of teacher directed activity	☐	☐	☐	☐
Flexibility in the time devoted to different subject areas	☐	☐	☐	☐
The amount of learning which takes place	☐	☐	☐	☐

2. Do you think that the method of teaching adopted under the project is really helping the children to learn better?

To a great extent ☐
To some extent ☐
Marginally ☐
Not at all ☐

3. Do you recommend that this approach should be adopted by all teachers in other schools also?

Yes	No
☐	☐

For office use

4. Could you have adopted this approach even without the SIP being initiated in your school?

Wholly ☐
Most of it ☐
Some aspects ☐
Not at all ☐

5. Do you think that the changed approach to classroom teaching has influenced learner motivation?

To a great extent ☐
To some extent ☐
Marginally ☐
Not at all ☐

6. To what extent has the SIP improved attendance in the school?

A lot	A bit	Not much	Not at all
☐	☐	☐	☐

7. How would you compare the achievement levels of the children you currently teach with what you would have expected to result from more traditional methods in relation to:-

	More satisfactory	The same	Less satisfactory
Listening	☐	☐	☐
Reading)	☐	☐	☐
Writing) in English	☐	☐	☐
Speaking)	☐	☐	☐
Computational skills	☐	☐	☐
Knowledge in science	☐	☐	☐
Knowledge in S. Studies	☐	☐	☐
Independent thinking	☐	☐	☐
Working in groups	☐	☐	☐
Self confidence	☐	☐	☐
Motivation to learn	☐	☐	☐

For office use

8. Do you think that child-centred approach to learning which you are trying to adopt is too demanding in terms of time and overburdens the teacher?

Yes, considerably ☐
To some extent ☐
Not at all ☐
Rather it reduces the burden on the teacher ☐
It increases the preparatory time but makes classroom teaching easier ☐

9. It is felt by some teachers that child-centred approach shows the pace of learning and therefore makes it more difficult to meet the curricular prescriptions. Based on your experience, do you subscribe to this view?

It does not affect the pace of learning ☐
It is true that it slows down the pace of learning and creates problems for timely completion of the prescribed curriculum ☐
It slows down the pace of learning in the initial stages but children would make up for this through much faster learning at later stages ☐

10. What are the main constraints you have faced in adopting the new methodology of classroom teaching?

(a) ______________________________

(b) ______________________________

11. What are your specific suggestions to improve the learning strategies currently advocated under the SIP?

(a) ______________________________

(b) ______________________________

V Helping the Slow Learner

1. How do you cater for the needs of slow learners and children with learning problems in your class?

By grouping the children suitably ☐
By helping them outside the class hours ☐
By referring them to the remedial unit ☐

For office use

2. What is the level of interaction between you and the persons involved in the work of the Remedial Unit?

Regular ☐
Occasional ☐
Rare ☐
Practically no interaction ☐

3. Do you have any suggestions as to how the work of the Remedial Unit in your school could be strengthened?

(a) ____________________
(b) ____________________
(c) ____________________

Education is a major focus of expenditure in all societies but the burden is particularly acute in the developing world. In many developing countries, high birth rates and low incomes combine to make even basic provision difficult. In such contexts the resources available for innovation are minimal and the support which aid agencies such as the Aga Khan Foundation can offer has a pivotal role in school improvement.

This evaluation was designed to take a closer look at the principles lying behind the Aga Khan Foundation's School Improvement Programme and to explore the impacts which these have had on two of the Foundation's projects. The principles were that effective school improvement would follow from a focus on individual schools, from the use of 'clinical' methods of staff training and from attention to the development of school management. The projects studied were in Bombay in India and Kisumu in Kenya.

This report will be of interest not only to those concerned with the work of the Aga Khan Foundation. It has messages about student-centred learning, methods of staff training, project management, and cost issues, which will be of interest to anyone involved in improving schools through innovative development programmes. Its foundation on a thorough analysis of existing research and its use of a wide range of systematic procedures to gather data in schools and classrooms, means that its findings will offer an agenda which ought to be addressed by all agencies which sponsor or conduct educational projects in developing countries.

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The Scottish Council for Research in Education
15 St. John Street, Edinburgh EH8 8JR

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